



# AAA COLLEGE OF ENGINEERING & TECHNOLOGY

APPROVED BY ALL INDIA COUNCIL FOR TECHNICAL EDUCATION, NEW DELHI  
AFFILIATED TO ANNA UNIVERSITY, CHENNAI



## Green Campus Report

2019 – 2020



**“Only when the last tree has been cut down, only when the last river has been poisoned, only when the last fish has been caught, only then will you find that money cannot be eaten.” -Lester Brown**

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<b>&amp; ECO AND NATURE CLUB</b>			
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## **GREEN CAMPUS REPORT**

### **1.0 Introduction**

The AAA College of Engineering and Technology was established in the year 2013 in the outskirts of Amathur, Sivakasi taluk. Since the establishment of the college from 2013, this area had been sculpted greener by the local bodies involved in teams at every venture. The college is a boon for the local people by offering employability at all levels. This population accounts for 40% of the people employed here. The buses ply and cover 90% of the Virudhunagar district from the campus.

The assured green campus and audit is directly linked to the resource consumption, concern towards eco-friendly administration, resource depletion, and recycling of the products and resources. This green audit unveils deftly the activities inside the campus to ensure utilization of green resources and self-analysis of the campus greenery. This detailed report also explores the policies adopted in maintaining the sustainability and bio diversity of the campus flora and fauna to the maximal extent.

The eco and nature club had been formed by the team comprising of the Principal, HOD/Civil and staff members from civil engineering department. The green audit is identified as systematic development, ensuring biodiversity and sustainable building construction which is directly linked with the health of inhabitants and outsiders near the campus. The college authority ensures policies and practices to preserve the gifts of natural green cover. The green audit had been formulated to ensure “No Plastic Zone “campus and stick to minimal utilization of non-renewable resources. The specific objective has been framed to preserve water, waste management, paperless work, alternative energy, and mapping of biodiversity. The criteria, methods, and recommendations used in this research minds the healthy inhabitants in and around the College.



## **2. Objectives of the Study**

The green audit from ECO & NATURE CLUB of the college is to assess the green environment, survey of greenery and intends to preserve the college campus maintaining sustainability with acceptable standards of reduced pollution and contamination.

The green audit focuses on the following:

- To create awareness among the students about the importance of preserving nature cover and sustainable living.
- To curtail livelihood and environmental practices leading to threats of human habitat.
- To utilize and preserve nonrenewable resources for pollution free environment
- To summarize and access the status of green cover in and around the campus.

## **3. Methodology**

The methodology includes interviewing the labourers associated with cleanliness, gardeners, hostel authorities and employees at all level of hierarchy. The management ensures the green campus policies inside the campus and strict rules are framed to eradicate the polluted atmosphere: The report covers the following perspectives.

- Green cover management
- Water Management
- Waste Management
- E- Waste Management

### **3. 1 Green Cover**

#### **3.1.1 Observations:**

The AAA College of Engineering and Technology is located at Amathur, Sivakasi covering an area of 43.87 acres (177536 Sq.m) of land. About 40 % of the area is greener with variety of green trees, shrubs, bushes, vegetation and native flora and fauna.

The campus is well surrounded by Neem trees, non-timber *Millettia Pinnata* (*PungaMaram* in Tamil), Royal Palm trees (*Arasa Panai Maram* in Tamil), *Nerium Oleander* (*Arali Poo* in Tamil), *Tabernaemontana Divaricate* (*Nandiyavattai* in Tamil). Wide variety of crotons including

Codiaeum variegatum flourish inside the campus. Apart from this bushes and shrubs beautify the campus.

About 1 acre of the land is surrounding the campus in the form of coconut garden with about 200 coconut trees. The neem trees as per record is around 2000 including half grown and fully grown species.

The coconut garden and the neem garden form a wonderful sight along with Peacocks, Peahens, Rock Sparrows, crows, Parrots, Dragonflies, Bees, Mynas, Doves and Cuckoos. The snakes were often sighted in the gardens. The rabbits are a good sight to see jumping along the garden at night.



### **Main Block**

### **3.2 Recommendations**

- The green cover should be extended to 60% of the campus area.
- More number of Saplings shall be planted.
- More number of dust bins should be placed at the canteen, office, departments and hostels.
- The plastic usages should be strictly prohibited.





**Way to Hostel**



**Engineering Block**





**Girls Hostel**



**Way to Workshop**





*Senna auriculata*





**Hibiscus Rosasinensis**





**Nerium Oleander**





**Royal palm Trees**





**Crotans**





*Ixora coccinea* .





*Leucaena leucocephala*





**Millettia pinnata**





**Rock Sparrow**



**Peahen**



**Coconut Gardens**





### **Neem garden**

## **4. CLEAN CAMPUS PROGRAMMES**

### **4.1 Observations**

The College organization ensures the following sustainable 5S Technique in Waste Management.

- 1) Sort
- 2) Set in Order
- 3) Shine
- 4) Standardize
- 5) Sustain

The Management team and Principal entirely focus on ensuring these techniques for each department to have a stability in maintaining green campus. The sustainably constructed campus had reached one among the attractions in this rural area meant for sulphur landfill. Clean Campus

programs had been organized by college each year by NSS team for ensuring the garbage collection and plastic free campus. Campus cleanup programs fetched and inspired from Swatch Bharat Missions had been initiated by this team. Periodically site visits to nearby villages is also carried out by NSS team. Clean Environment and Sustainability had been stressed through awareness programmes.

#### **4.2 Existing Green practices**

- **Paperless office** – Paper Waste are collected periodically and stored in separate place. They are disposed to vendors for possible re-use. Communication to faculty and students to the maximum is done through mails and electronic media. Printing is done on two sides. Calendar Papers are cut to A4 size and reused.
- **Green Computing** - Around 40-50% of the systems work under end computing thin line which consumes less energy. In this way, green computing features are incorporated.
- **Green building practices** – The building is constructed with increased Wall thickness of 450 mm dimension. This allows temperature inside the building to drop by 2 to 3 degree Celsius during summer. During winter it will be warm. Energy Efficient windows are used which maximize the natural light entering into rooms. This saves the lighting requirements and also keeps the building warm in colder months. Rain water harvesting exists which makes use of the rainfall for water saving. Unnecessary Air Conditioner (AC) usage is avoided.
- **Students, Staff using Public Transport** - The Institution provides transport facilities for the students as well as faculty members. College buses are available in almost all local surroundings covering 70 km in and around the Institution. Public transport facilities are also available. Majority of the faculty and students are using any one of the above facilities. Hence usage of individual bike and car for transport is avoided and we are not polluting the environment unnecessarily.
- **Pedestrian friendly roads** - For the wellbeing of students, paved road along with raised footpath is provided in the campus. The foot path is laid apart from the road to ensure safety. The department class rooms are located in the same building. Hence it enables the students and faculty to move easily from one place to another place by walking itself in time which avoids driving around campus.



- **Usage of plastics is restricted** - Awareness of the Plastic hazards is created in the minds of students through various programmes
- **Tobacco free campus** - The sale of tobacco products had been banned in and around the campus. The students had already been made aware of the ill health due to use of liquors and tobacco in all forms. Several awareness programs had been conducted for the benefits of students, faculty members and non-teaching staff members.

## 5. Safety Measures Inside the Campus

### 5.1 Fire Safety

All the floors are equipped with fire extinguishers in the Engineering Block and Academic Block. The fire safety audit is conducted to ensure the fire safety during every academic year. The fire extinguishers are checked for expiry and replaced at the needy locations.



**Fire Extinguisher at Engineering Block**



**Fire Hydrant at Main Block**





**Termite Proof works for Water Cooler stand**

**5.2 Termite Proof** - The furniture are painted at regular basis to avoid damages.



Latitude: 9.568628  
 Longitude: 77.870131  
 Elevation: 117.37m  
 Accuracy: 3.8m  
 Time: 05-08-2019 14:08  
 Note: AAACET

**Security 24 X 7**

**5.3 Security** - The College security system functions throughout the week for 24 hours. The security is enacted with security camera systems throughout the campus.

**5.4 Safer Traffic flow** - Barricade and Speed Breakers had been provided at college entrance to ensure safe traffic during peak hours, as the college is located in State Highway. The bus stop provided at the college entrance ensures safer traffic and mobility near the college environment. The passenger safety is ensured by curtailing students from using foot board travelling in out buses and college buses. The plying buses reduce the number of individual two wheelers and four wheelers inside the campus.



**Public Transport at College bus stop**





**Barricade at College entrance**

### **5.5 Recommendations:**

- More number of water points need to be installed.
- The painting works need to be periodically monitored.
- The additional pipe fittings and wash basins needed to be provided in all staff rooms.
- Additional awareness programs on avoiding littering should be conducted.

### **6 Liquid Waste Management**

The huge population of 631 students and 64 staffs imposes a strain on water resources. Hence a well-designed Effluent Treatment Plant ensures biodegradation and gardening simultaneously. The RO treatment plant ensures a production capacity of 2000 L/Day as potable water. For domestic and gardening purpose, the water supply of 1000 L/day from Effluent Treatment Plant is ensured. The rain water harvesting plant installed at Main Block and Engineering Block is offering ground water recharge.



**RO Plant**



**Effluent Treatment Plant**





**Rain Water Harvesting Tank**



**Installation works of Rain Water Harvesting Recharge Tank (20'x 8' x 15')  
at Engineering Block**





**Rain water harvesting Recharge Well at Engineering Block**



## **7 E Waste management**

### **7.1 Observations**

Since the college was started in 2013, no major disposal of electronic waste had been reported. The printer cartridges and toners are refilled thrice and used. Major communication is executed by paperless office as reported earlier. The College strictly adheres to pollution control norms of the government. More than 50% of the buildings are designed and constructed eco-friendly utilizing natural cover and breeze. This had reduced power consumption by 40%. Additional capacitors were installed to increase the power factor, thus reducing the electricity consumption. The lights of the green campus had been replaced with more number of LED bulbs than CFL bulbs and tubes. Window air conditioning system had been replaced with multi split units for maximizing the efficiency.

### **7.2 Recommendations:**

- Minimise the usage of paper wastages and plastic files.
- The batteries, glass, print cartridges should be utilized in eco-friendly manner.
- Activate energy saver mode in computer systems when not in use.
- Turn off unnecessary lights and fans when not in use
- Sufficient collection units must be installed for e waste
- The paper waste may be sent for pulping units.
- The discarded computer systems, electronic systems, networking components etc., should be disposed to E-waste recycling systems in future.

## **8. Solid waste management**

### **8.1 Observations**

Our college has a strong waste management system. Our college continues to invest in waste management system and sufficient number of workers maintains the college campus and hostels clean. The paper wastes, plastic wastes, food wastes etc. are segregated into biodegradable and non-biodegradable wastes. Biodegradable wastes from canteen, kitchen and other places are collected in dustbins and transported to vermicomposting units. The recyclable wastes such as examination papers are collected and periodically supplied to the local recycling vendors to avoid wastage dumping. One sided papers are re-used by the faculty members for rough work.

## 8.2 Vermi Composting Unit

“Vermicomposting is a process where the earthworms convert the organic waste into manure rich in nutritional content”

The bio waste from the campus including weeds, shredded plant leaves are collected along with food waste and dumped into the composting yard. The cow dung is then added where the earthworms feed on the biomass and excrete in digested form (vermicasts). This is termed as vermiculture or “worm – forming.” The vermicasts are rich in nitrates and minerals such as potassium, phosphorus, magnesium, and calcium. The vermi composting unit functions with “Pit method.”

Procedure of Vermicomposting inside the campus:

1. A Pit of size 10’x10’x7’ was dug.
2. Walls made of paver blocks were cast around the pit.
3. Bio mass was collected from the campus.
4. Fine Bed was prepared by adding decomposed cow dung, dried leaves and other biodegradable waste collected from the kitchen of all the hostels.
5. Bio waste was continually added along with partially decomposed cow dung up to ½ ft.
6. Earthworm species were released over the mixture with dry straw.
7. Water was sprinkled thrice a day to maintain moisture content.
8. The compost was checked frequently for overheating and moisture was maintained.
9. The loose soil –like material was obtained after 3 to 4 weeks
10. The obtained material was dried in sun.
11. The dried vermicasts serve as manure.





# Vermicomposting



Collect Organic Waste



Add Cow dung



Add Earthworm



Sprinkle Water



VermiComposting



Manure

## 9 Hostels and College Canteen

The College Canteen is well equipped with biodegradable/ stainless steel furniture and utensils. The usage of paper cups /waxed cups is banned inside the college canteen.

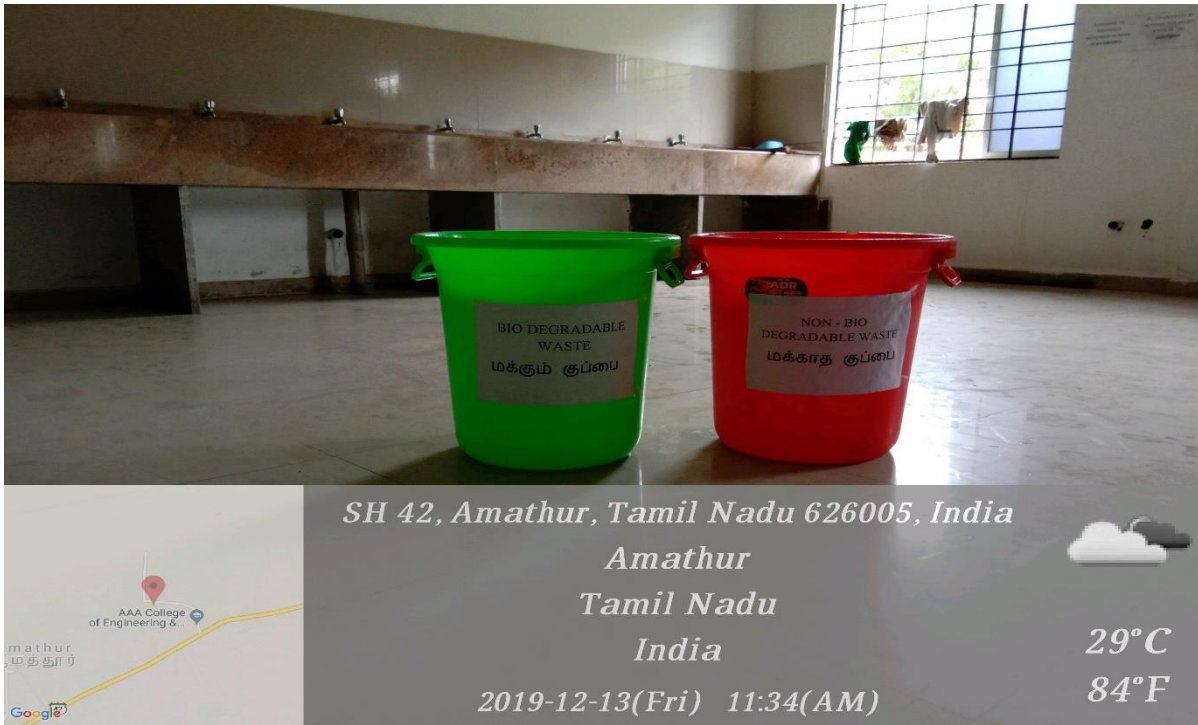


**Canteen Kitchen**



**Cafe and Store**





### Hostel and Bin

Separate dustbins are maintained for collecting bio degradable/ non-biodegradable wastes.



### Students dining at the Hostel



### **Collecting Food waste (Dumping at bin)**

#### **The Following rules are laid for Clean Canteen and Hostel**

- Be aware to keep the food service area, food display areas clean and tidy.
- Follow the queue during dining hours.
- Avoid wasting food and water. Keep the taps closed when not in use.
- Dump the food waste in appropriate bins.
- Wash the plates clean, after food and keep it at appropriate defined locations.
- Avoid strewing papers, chocolate wrappers, and packet items. Put them in dust bins.
- Maintain Calm environment while having food. Avoid noisy gossips which will be good for healthy digestion.

#### **9.2 Daily Kitchen Cleaning List**

- Clean out grease traps.
- Change foils linings of grill, range and flattops.
- Wash the can opener.
- Run hood filters through dish washer.



### **9.3 Weekly Canteen Kitchen Cleaning list**

- Empty reach-in-coolers and wash and sanitize them.
- Delight sinks and nozzles/outlets.
- Clean Coffee machine
- Clean the ovens.
- Oil cast iron cook ware.
- Use drain cleaners on floor drains.
- Ensure the safety of LPG gas cylinders and gas pipe lines.

### **9.4 Monthly Canteen Kitchen Cleaning List.**

- Wash behind the hotline (Oven, Stove, fryers) to cut down on grease buildup which is a major fire hazard.
- Clean Freezers.
- Empty and Sanitize the Refrigerator.
- Calibrate the Ovens.
- Wash walls and ceilings.
- Wipe down the dry storage area
- Restock the first aid kit.

### **9.5 Yearly Canteen Kitchen Checklist**

- Check Fire Suppression system.
- Check the Fire Extinguisher twice a year.
- Clean hoods twice a year.
- Clean pilot lights on the kitchen.

## **10 NSS Activities on Green Campus**

The green campus has around 2300 trees with green atmosphere which reduces the temperature by 2 to 3 degree Celsius. The NSS teams up with students and staff members of the college

every year and plant saplings of trees to make the campus greener. The credit goes to management and technical hierarchy who ensures the sustainable campus.



**NSS Activities for Green Campus**





**NSS Activities near Hostel**

## 11. Green Maintenance

### 11.1 Observations

Invasion of mesquite trees in the campus has been a long concern. Its encroachment reduces herbaceous resources and causes land dryness by sucking ground water. Our NSS volunteers actively took initiative to remove mesquite from the AAACET campus. Gardeners are employed to clean unwanted weeds and vegetation from the campus. The campus is laid with porous pavement blocks such that the rainwater drains off immediately under the ground and get collected by rainwater harvesting system.



**Removal of unwanted weeds**



## **11.2 Recommendations**

- Survey of trees should be executed periodically.
- Promote environmental awareness through various programs on green cover
- Celebrate June 5 as “Environmental Day”. .
- Awareness of sustainable development should be created to insiders and the outsiders residing in the nearby locality.
- Green Library to be established.
- Indoor plantations including Bonsai to be inculcated.

## **12. Policies of Eco And Nature Club**

Eco and Nature Club had been framed by the college authority to enforce pollution free campus with the following objectives.

- “Plastic Free Campus”.
- Organize competitions and events related to sustainable campus
- Organize planting saplings of green cover.
- Educate and create awareness of greenery and re use of waste materials.
- Avoid burning of wastes leading to pulmonary infections.
- Motivate minimal waste generation and resource depletion.
- Safe guard ecological foot Print.

## **13. Common Recommendations**

- Adopt an environmental policy for the college
- Establish a purchase policy for environmental friendly materials
- Conduct more seminars and group discussions on environmental education
- Students and staff can be permitted to solve local environmental problems
- Renovation of cooking system in the canteen to save gas
- All trees in the campus should be named scientifically.
- Create more space for planting.
- Grow potted plants at both verandah and class rooms.
- Create automatic drip irrigation system during summer holidays.
- Beautify the college building with indoor plants
- Providing more funds to nature club for making campus greener.

## **14. Paybacks and Conclusions**

“The green campus is a place where environmental friendly practices and education combine to promote sustainable and eco-friendly development inside the campus. The green campus pronounces the institution, an opportunity to redefine the environmental culture and developing new paradigms by creating sustainable solutions to environmental, social, and economic needs of mankind.”

The College Authority ensures sustainability at all levels since the start from 2013. The campus green cover is existing for about 40% of the college area. Several awareness programmes had been conducted by the academicians and Eco and Nature club of the college. The non-recyclable wastages had been minimized. The wastages from the hostels had been dumped to composting yard. The college utilized minimal power consumption as a whole by using energy saving lights such as LED bulbs/tubes and equipment. Considering the fact that the institution is predominantly an undergraduate college, there is significant environmental research both by faculty and students. The environmental awareness initiatives are substantial. The paperless work system and vermicomposting practices are noteworthy. Environmental awareness programmes initiated by the administration shows how the campus is going green. Few recommendations are added to curb the menace of waste management using ecofriendly and scientific techniques. This may lead to the prosperous future in context of Green Campus & thus sustainable environment.