# VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama", Belagavi - 590018

A Report on

## NATIONAL SERVICE SCHEME [NSS]

## NON CREDIT MANDATORY COURSE

Submitted in partial fulfillment of the requirement for the award of the degree of

**Bachelor of Engineering**

**in**

**Computer Science and Engineering (Artificial Intelligence & Machine Learning)**


**By**

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Under the guidance of

**Dr. Hussana Johar R B**

**Associate Professor**

**Department of Computer Science and Engineering (AI & ML)**


ATME College of Engineering

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (AI & ML)**

# ATME College of Engineering

13th Kilometer, Mysore – Kanakapura - Bangalore Road, Mysore-570028

(Affiliated to Visvesvaraya Technological University, Belagavi) 2024-2025

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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ATME College of Engineering

## CERTIFICATE

*Certified that the report entitled* ***NATIONAL SERVICE SCHEME –***

*"****Waste Management- Public, Private and Govt organization, 5 R's****." in activity place a bonafide activity carried out by* ***Hemanth kumar V (4AD23CI017) , Yashwanth J (4AD23CI062) , Darshan Gowda GD (4AD23CI009) , Hashwik S ( 4AD23CI016) , Dhanush Gowda (4AD23CI011)*** *in partial fulfillment for the award of degree of* ***Bachelor of Engineering in Computer Science and Engineering(Artificial Intelligence & Machine Learning)of Visvesvaraya Technological University****,* ***Belagavi*** *during* ***3rd semester*** *in the year* ***2024-2025.*** *It is certified that all corrections/suggestions indicated for internal assessments have been incorporated in the report deposited in the departmental library. The activity report* ***[BNSK359]*** *has been approved as it satisfies the academic requirements in respect of project prescribed for the* ***Bachelor of Engineering Degree****.*

| | |
|---|---|
| Signature of NSS Coordinator | Signature of HOD |
| **Dr.Hussana Johar R B** | **Dr. Anil Kumar C J** |
| **Associate Professor** | **Assoc.Professor &HOD** |

ATME College of Engineering

# DECLARATION

We, **Hemanth kumar V**, **Yashwanth J, Darshan Gowda GD, Hashwik S, Dhanush Gowda** , students of 3rd semester, B.E Computer Science and Engineering(Artifiical Intelligence & Machine learning), ATME College of Engineering, Mysore, hereby declare that the activity report entitled **"NATIONAL SERVICE SCHEME –** "**Waste Management- Public, Private and Govt organization, 5 R's**." in activity place is an authentic activity report of our own work carried out under the supervision and guidance of Dr. Hussana Johar R B, Associate Professor and NSS CSE(AI & ML) Department Coordinator, Department of Computer Science and Engineering(AI & ML), ATME College of Engineering, Mysuru. I have not submitted the matter embodied to any other University or Institution for the award of any other degree.

Date: 03-12-2024

Place: Mysuru

# CHAPTER 1

# INTRODUCTION

Title: **Waste Management**

Under NSS activity point program on waste management, motivate us and inculcate the team work and self-confidence.

Education is an overall process of not only personal growth but an enriching growth of society and nation. It is the foundation of development of any nation. Educated youth have the ability to think beyond their stagnating lives and contribute to the development of their societies.

On our college campuses, waste management include the methodical processing of many kinds of garbage produced by administrative, academic, and recreational activities. Waste can be quite diverse and abundant in educational institutions due to the influx of personnel, teachers, and students. Putting effective waste management procedures into place is essential for both adhering to more general environmental goals and keeping the campus clean and healthy. This covers tactics like minimising waste, implementing recycling plans, properly disposing of hazardous waste, and fostering a sustainable culture through awareness and education efforts.

- The systematic processing of many types of waste generated by administrative, academic, and recreational activities is included in waste management on college campuses. Because of the constant stream of staff, instructors, and students in educational institutions, waste can be both diversified and plentiful. Maintaining the campus's cleanliness and health as well as adhering to more general environmental goals depend on the implementation of efficient waste management practises. This includes strategies like waste reduction, recycling plan implementation, hazardous waste disposal done correctly, and raising awareness and educating people about sustainability.


- This report will examine the challenges faced by college campuses in waste management and cleaning,explore existing models of success, and provide recommendations for the implementation of sustainable practices. By fostering a cleaner, greener, and more sustainable campus, educational institutions can contribute significantly to the development of environmentally conscious individuals and contribute to a broader societal shift towards a more sustainable future.

## CHAPTER 2

# OBJECTIVE AND INFORMATION BOARD

## Objective

To learn and gain knowledge effective waste management system at ATME College of Engineering, focusing on sustainable practices for solid waste, liquid waste, e-waste, waste recycling, plastic reduction, and infrastructure development such as tanks and bunds for waste management.

## Information Board

1. College has Solid Waste Management

Sources: Canteens, classrooms, laboratories, hostels, and administrative offices.

- Segregation of waste into biodegradable, non-biodegradable, and recyclable waste at source is done. Installation of labeled bins for proper segregation.

2. Liquid Waste Management

Sources: Laboratories, kitchens, and bathrooms.

- Our college has its own wastewater treatment plants (WWTP) or sewage treatment unit, and management reuse the treated water for landscaping and gardening.

3. E-Waste Management

Sources: Electronic gadgets, old computers, printers, and laboratory instruments.

Management has Tied-up with authorized e-waste recycling companies, and established an e-waste collection bin on campus.

4. Waste Recycling System

Key Components: Paper, plastic, glass, and metal.

- reuse of paper by double-sided printing.

5. Construction of Tanks and Bunds

- Purpose: Rainwater harvesting, wastewater treatment, and storage of treated water.

- Designed and constructed bunds to collect surface runoff and prevent erosion ,construction of tanks for rainwater harvesting to recharge groundwater.

CHAPTER 3

# ABOUT THE PLACE

ATME College of Engineering, located in Mysore, Karnataka, is a premier institution dedicated to providing high-quality technical education. Established with the vision of fostering innovation and excellence, the college offers a range of undergraduate and postgraduate programs in engineering and technology. Nestled amidst a serene and green campus, ATME provides an ideal environment for learning and personal growth. The institution is equipped with modern infrastructure, well-stocked libraries, advanced laboratories, and sports facilities, ensuring holistic development for students. With a focus on industry-oriented training and a strong emphasis on research, ATME College of Engineering stands as a hub of academic excellence and career development in the region.

## GREEN PRACTICES:

- Dustbins have been provided along all major corridors & Every block for collection and waste.
- Drinking water facility (RO-Water) is provided for students and staffs for each block.
- Water treated from Sewage Treatment plant are used for flushing and for gardening, ensuring no water is wasted in the campus.
- Also, rainwater harvesting facility is also provided ensuring the refilling of underground wells during the rainy season.
- Firefighting services have been installed all around the campus as per the regulatory norms suggested during the approval for the building plans.
- A Maintenance Section constituted in the college will take care of the maintenance of the campus with sufficient human resources.
- The campus has lush green lawns and well grown trees, thus making the institute, eco-friendly.
- The campus also houses its own roof top power generation Plant of 95KWP capacity, ensuring green power source and its commitment to Green Energy initiative.

## CHAPTER 4

# CONDUCTION OF THE ACTIVITY

*Collection of information board and conducted activity in several phases to ensure a systematic and effective approach:

## COLLECTION OF INFORMATION BOARD:

### 1. Solid Waste Management:

- Our college has a very good policy in the solid waste management system. The Solid waste collected form each department and is put by the respective departments in a collection pit located within the campus.

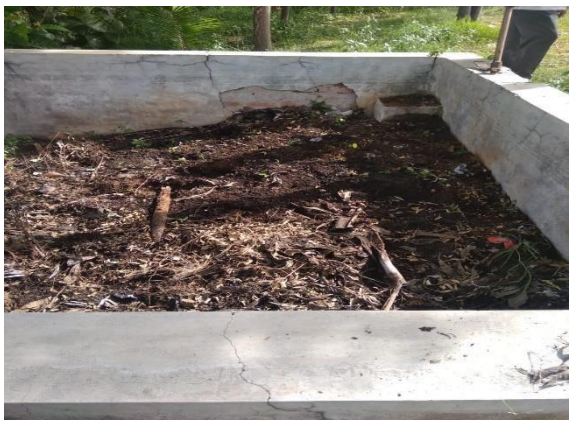
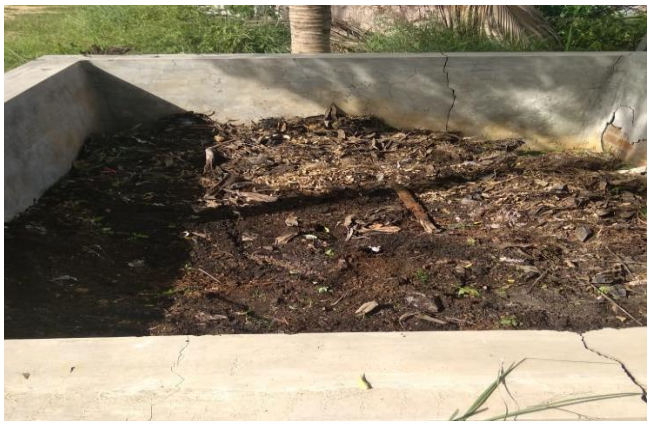



Figure: Compost pits located at ATME campus

- The waste is segregated into biodegradable and non-degradable wastes. As a social responsibility about the nature, It produce natural manure by compost waste treatment is the process of converting dry leaves and paper waste into compost so that it can be used as a manure for the plants. Also, the solid waste generated through Cafeteria is also put into the same pit for preparing the compost. As a natural initiative, avoid chemical pesticides for the plants as a manure in the campus.

**2. Liquid Waste Management:**

- ATME College of Engineering has its own Sewage water treatment plant. It's in function since 2018.

The overall design of the waste water treatment plant consists of 3 stages

i) Primary treatment which consists of screening.

ii) grit removal and sedimentation.

iii) Secondary treatment consists of a bioreactor.

- The proponent has Sewage Treatment Plant (STP) of capacity 16686 litres.
- Raw Sewage Screening, Oil / Grit Removal, Equalization Tank, Fluidized Bio Reactor, Tube Settler, Pre-filtration tank, ACF, PCF, Final Treated holding tank.
- The treated wastewater is recycled for toilet flushing's and gardening purpose.

Figure: Waste water Treatment plant located at campus.

**3. E-waste management System:**

- E-waste generation at our institute is very minimal. Since the e-waste are consisting of computers and its peripherals, the e-wastes generated are stored at one place.
- Also, the disposal of the e-wastes is planned by tying up with Sogo e-waste management, Bangalore.

## 4. Waste recycling system/ Rain Water Harvesting System

- As mentioned in the Liquid Waste management System above, the college has STP plant to which used to recycle the waste water. The recycled water is used for Toilets and gardening purpose.
- Along with this, ATME College in order to achieve sustainability has implemented the rain water harvesting system in the campus. The system adopted is roof top rain water harvesting.
- The campus is equipped with underground sump of capacity approximately 92,000 litres, to store the harvested rain water.

| Sl. No. | Block | Roof Top Area ($m^2$) | Average Rainfall per annum in mm | volume of water collected ($m^3$) |
|---|---|---|---|---|
| 1 | CV Department | 1664.02 | 770 | 1281 |
| 2 | EEE Department | 1306.3 | | 1006 |
| 3 | ME Department | 2264.82 | | 1744 |
| | | | **Total** | **4031** |

Table: The details of roof top area and the harvesting potential

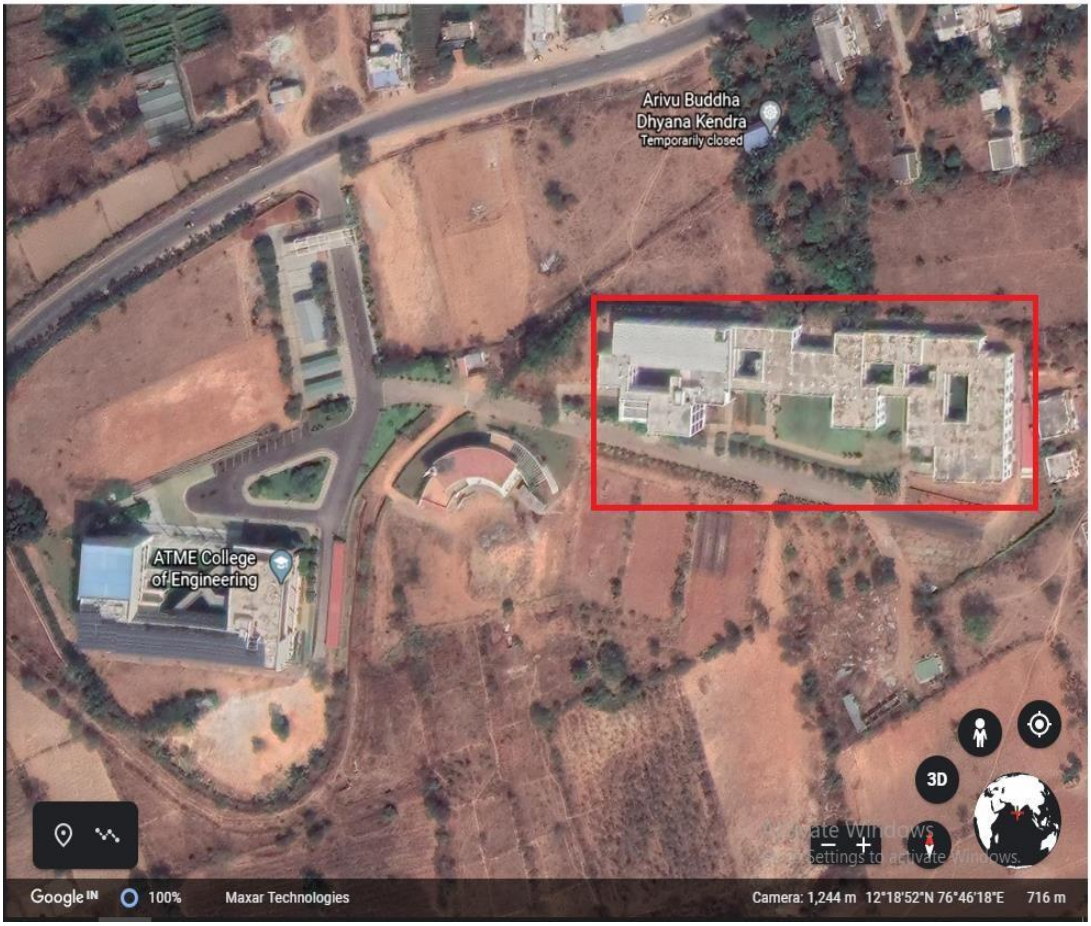



Figure: Roof top rain water harvesting

## 5. Recharging system

- Open well Recharging system .
- The campus is equipped with underground sump of capacity approximately 92,000 litres, to store the harvested rain water.
- During rainy season the rain water is not let to flow out of the campus but is harvested and stored in the recharge wells.

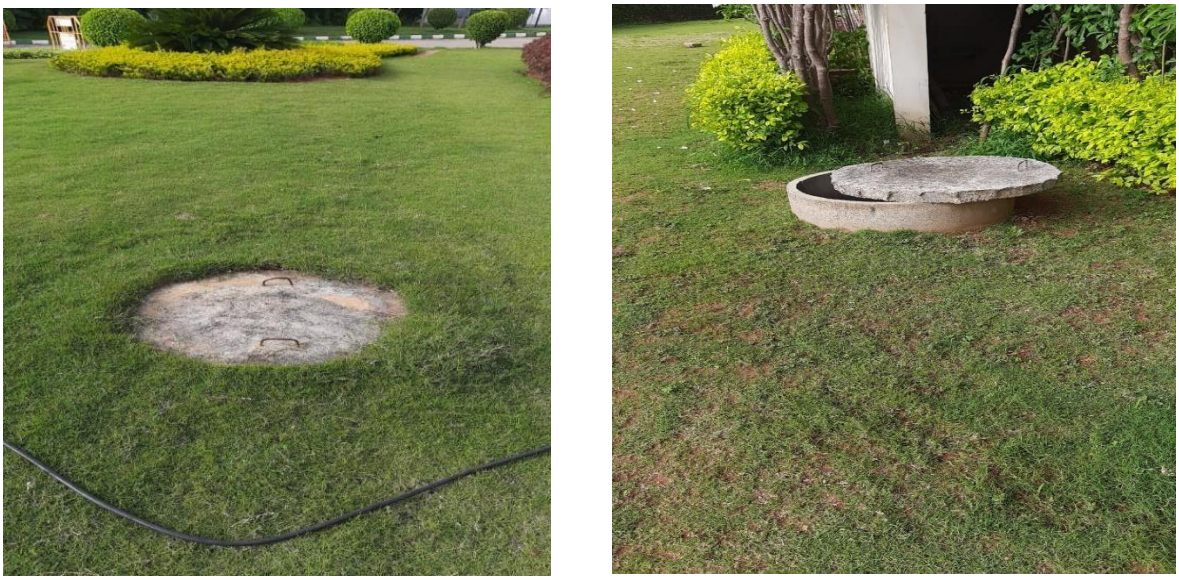
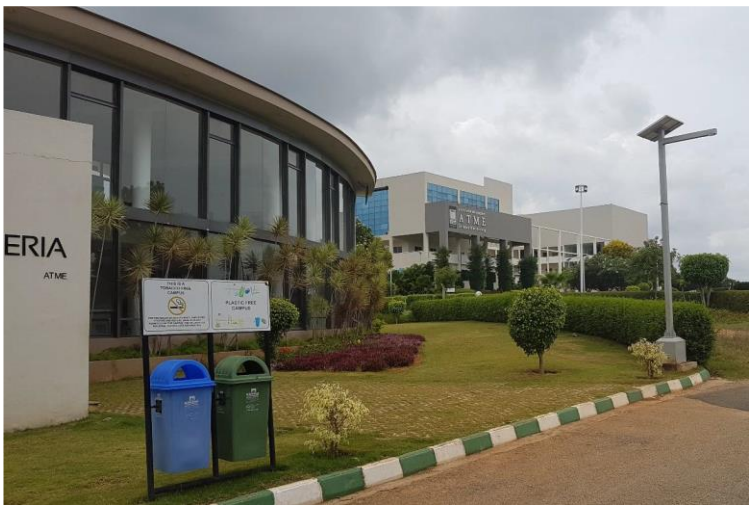
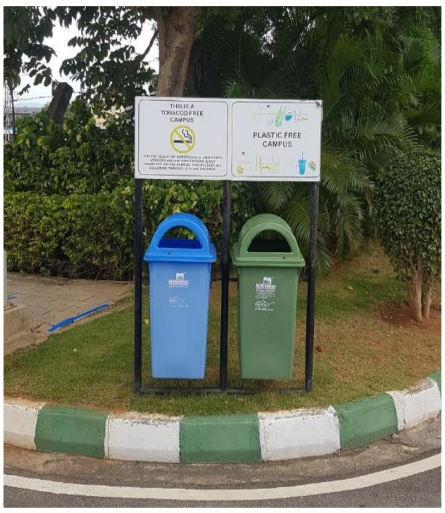


Figure : Recharge pits .

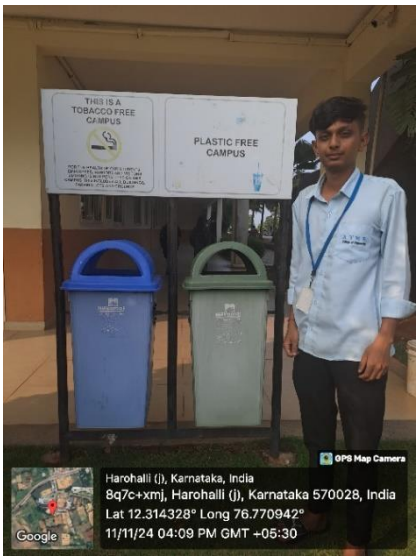
## 6. Plastic free campus

- Since from the inception the college campus is made Plastic free and sufficient care has to be taken in this direction.
- Signage boards saying "**Plastic Free Zone**" is placed in each block at key positions along with the dustbins.
- Two dustbins are placed under each sign board for the easy segregation of waste as biodegradable and non-degradable waste.
- Also, Management are advised the Students and trained in the direction of minimalistic use of plastics and reduction in the use of Plastics.



# ACTIVITY

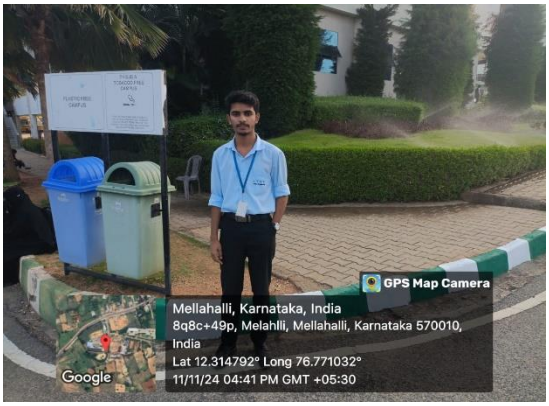



- **Assessment and Planning:**

Conduct a waste audit to understand the types and quantities of waste generated in the college. Identify areas with high waste generation, such as cafeterias, classrooms, and hostels. Develop a waste management plan based on the assessment, outlining specific goals and strategies.

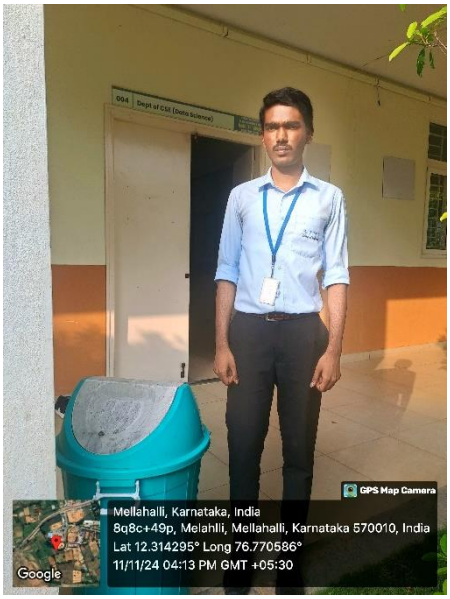
- **Educational Campaigns:**

Create awareness among students and staff about the importance of waste management and its impact on the environment. Organize workshops, seminars, or awareness campaigns to educate the college community about proper waste disposal practices.




- **Segregation System:**

Implement a waste segregation system with clearly labelled bins for different types of waste (e-g , recyclables, non-recyclables, organic waste). Provide information on what items go into each bin and why segregation is important.

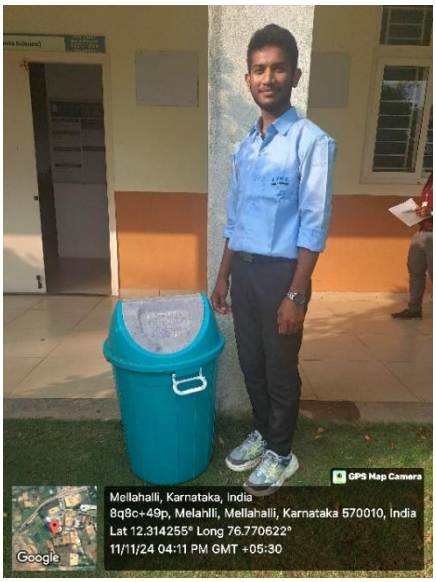



- **Collection and Storage:**

Set up a systematic waste collection system with designated collection points around the college premises. Ensure that waste is regularly collected and stored in appropriate containers.

- **Reduce Single-Use Plastics:**

Promote the use of reusable items (water bottles, bags, containers) and discourage the use of single-use plastics on campus.

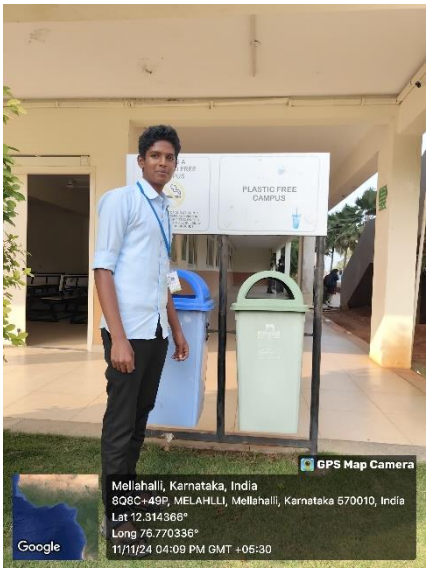



➢ **Composting:**

Introduce composting for organic waste generated in the college, such as food scraps and garden waste. Use the compost generated for landscaping or other sustainable practices.

➢ **Monitoring and Evaluation:**

Regularly monitor the effectiveness of the waste management initiatives. Collect feedback from the college community and make necessary adjustments to the waste management plan.




➢ **Recycling Initiatives:**

Establish partnerships with local recycling facilities or organizations to ensure proper recycling of materials like paper, plastic, and glass. Encourage the use of recycled products within the college.

➢ **Documentation and Reporting:**

Keep records of waste management activities, including the amount of waste collected, recycled, and disposed of. Share success stories and progress reports with the college community to maintain enthusiasm and commitment.

# CONCLUSION

In summary, the National Service Scheme (NSS) has had a significant influence on the general wellbeing of our academic community by leading the way in trash management and campus cleaning projects. With perseverance, teamwork, and a dedication to environmental responsibility, NSS has been able to successfully make our campus a healthier, cleaner, and more sustainable place. The involvement of NSS Me and my friends in the planning of awareness campaigns, cleaning drives, and garbage segregation initiatives has enhanced the campus's aesthetics and promoted a sense of civic duty and pride. Positive effects are felt even beyond the campus's outward look, as staff and students' attitudes and behaviours are influenced to embrace sustainable methods.

The benefits of NSS-led initiatives in campus cleaning and waste management are evident in the improved health and safety standards, the positive aesthetics of the surroundings, and the creation of a conducive learning environment. The success of waste management campaigns has contributed to reducing our environmental footprint and instilling a culture of responsible waste disposal and recycling. Moving forward, it is imperative to sustain the momentum generated by NSS. The need for ongoing awareness programs, regular cleaning schedules, and a robust waste management framework remains crucial for ensuring a clean and sustainable campus environment. NSS should continue to collaborate with local authorities, campus organizations, and the broader community to amplify the impact of their initiatives.