



MEA ENGINEERING COLLEGE-PERINTHALMANNA

(ISO 9001: 2015 Certified & NAAC Accredited Institution)

Approved by AICTE and Affiliated to APJ Abdul Kalam Technological University

Vengoor P.O., Pattikkad Via., Malappuram Dist., Kerala, PIN - 679 325

7.2 Green campus initiatives

1. Restricted entry of automobiles
2. Use of Bicycles/ Battery powered vehicles
3. Pedestrian Friendly pathways
4. Ban on use of Plastic
5. Landscaping with trees and plants

1. Restricted entry of automobiles

Restricting the entry of automobiles on a college campus is a common practice that can have various purposes and benefits.

Safety: Restricting the entry of automobiles can enhance the safety of students, faculty, and staff. It reduces the risk of accidents and incidents involving vehicles on campus, especially in areas with heavy foot traffic.

Pedestrian-Friendly Environment: Limiting the presence of cars on campus can create a more pedestrian-friendly environment. This can encourage walking and biking, promoting a healthier lifestyle and reducing pollution.

Environmental Concerns: Colleges want to reduce their carbon footprint and promote environmental sustainability by discouraging car use on campus. Fewer cars mean less air pollution and lower greenhouse gas emissions.

Traffic Congestion: Controlling automobile access can help alleviate traffic congestion on campus, making it easier for people to move around and reducing the time spent in traffic.



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Parking Space Management: Restricted entry helps manage parking more effectively. It can prevent overcrowding and ensure that parking spots are available for those who truly need them.

Campus Aesthetics: Reducing the number of cars on campus can enhance the aesthetic appeal of the college grounds. This may align with the college's goals for a more attractive and welcoming campus.



Students Bike Parking Area

2. Use of Bicycles/ Battery powered vehicles

Bicycle: The Institution has a dedicated parking spot for bicycles to encourage usage of bicycles for transport. Students and staff make use of this facility.

Public Transport: A total of 12 buses transport students and staff from various parts of Malappuram and adjoining districts to the college. A large majority of day scholars use the college busses for their daily commute to and fro the college.




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Battery powered vehicle for hostel canteen

3. Pedestrian Friendly pathways

Pedestrian Friendly roads: The College has road connectivity to all departments and other blocks in the compound. The roads are designed in such a way that pedestrians can move about easily and there is ample space for vehicles to move past without disturbing pedestrian movement. Sign boards are placed at all major locations to inform first time visitors and for easy navigation through the campus.



Pedestrian Walkway



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4. Ban on use of Plastic

PLASTIC FREE CAMPUS:

Our college encourages students and staff not to use plastic bags. The security guard makes sure that no one enters the college campus with polythene bags. Even for stage programmes, students make use of recycled paper and newspaper collages instead of printed flex boards for stage decoration and setting. This reduced the plastic usage. The NSS unit in the college carries out regular cleaning drives to make the campus more environments friendly.

PAPERLESS OFFICE:

AMS is used for attendance marking and student profile maintenance. All official communication is done through email. These efforts considerably reduce the paper consumption in the college. Important announcements are also displayed on the college display screen at the college main block, further reducing paper usage.

5. Landscaping with trees and plants

GREEN LANDSCAPING WITH TREES AND PLANTS:

The campus is beautifully landscaped with lush green grass and trees. The central roundabout houses a green park with grass, trees and plants. The side verandahs of Mechanical and Computer Science Engineering blocks are paved with grass and trees are planted at intermittent positions. Tree plantation drives are frequently organized by various clubs and units functioning in the college.



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7.2 Describe the facilities in the Institution for the management of the following types of degradable and non-degradable waste

Solid waste management

Liquid waste management

Biomedical waste management

E-waste management

Waste recycling system

Hazardous chemicals and radioactive waste management

Solid waste management

Solid waste management is of paramount importance in an engineering college due to various reasons that revolve around environmental, health, and social concerns. Effective solid waste management is a critical necessity within an engineering college setting, driven by a confluence of environmental, health, and social imperatives. The reasons underlying the urgency for a well-structured waste management system in such institutions are multifaceted and encompass various dimensions.

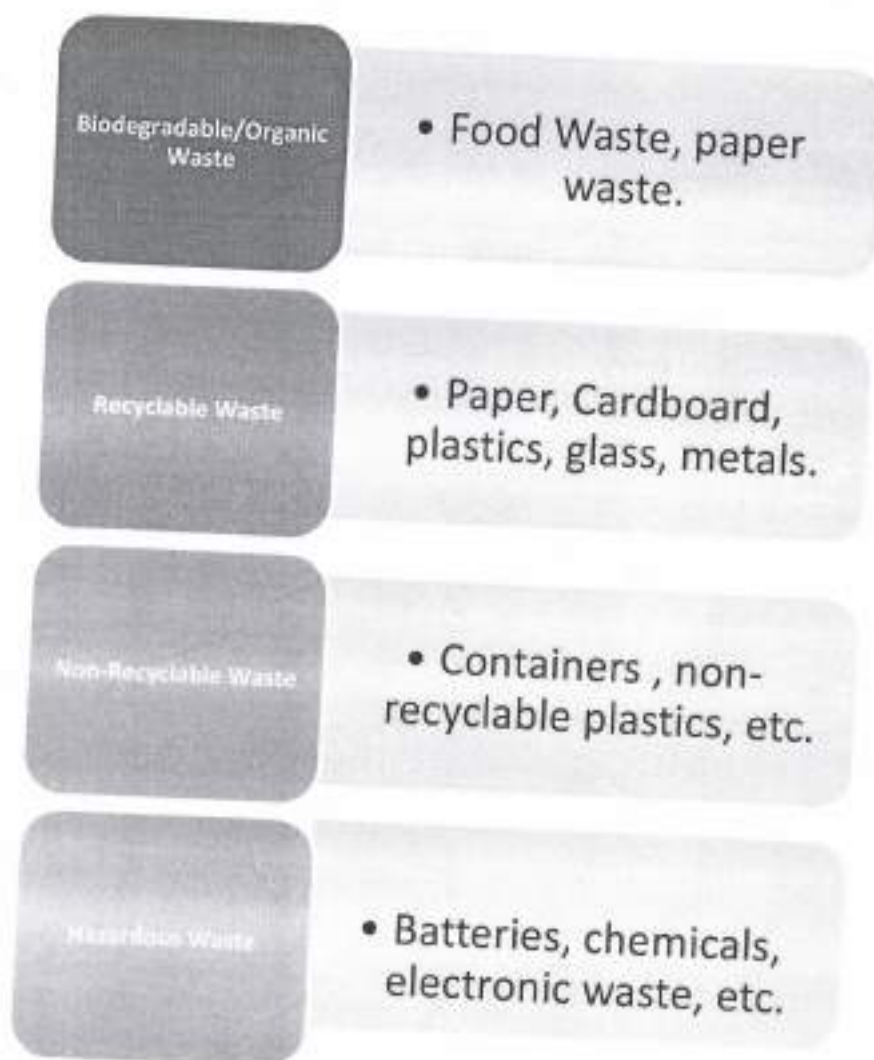
At the heart of this need lies the imperative for environmental conservation. With rapid industrialization and urbanization, waste has emerged as a significant contributor to environmental degradation. Proper waste management serves as a bulwark against pollution,




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arresting the improper disposal of waste that could otherwise contaminate air, water, and soil resources. By doing so, it safeguards ecosystems and the health of local communities.

In summation, the imperatives for effective solid waste management within an engineering college are manifold. They encompass environmental protection, health and hygiene, aesthetics, resource conservation, regulatory compliance, education, reputation enhancement, and resource efficiency. A comprehensive waste management strategy is not merely an operational necessity; it is a conscientious commitment to creating a sustainable and salubrious campus environment that fosters responsible stewardship among students, faculty, and staff.



Categorization of Possible waste in college




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Institution has implemented a systematic approach to waste management.

1. Dustbins at Appropriate Locations: Placing dustbins in strategic locations across the campus, including classrooms, toilets, and staffrooms, encourages proper waste disposal and helps prevent littering. This practice promotes a clean and organized environment. Dustbins at Appropriate Locations: Fostering a Culture of Cleanliness and Responsibility on Campus



Food Waste Collection Bin

Maintaining a clean and hygienic environment on campus is not only a matter of aesthetics but also a reflection of the institution's values and commitment to promoting a healthy community. One of the key practices that can significantly contribute to achieving this goal is the strategic placement of dustbins across various areas of the campus. These receptacles for waste disposal, when thoughtfully positioned, play a pivotal role in encouraging proper waste management practices, preventing littering, and creating an overall organized and welcoming atmosphere.

2. Regular Cleaning and Emptying: Scheduled cleaning and emptying of dustbins at 8.30am each day ensure that waste doesn't accumulate and cause unsightly conditions or attract pests. Regular maintenance helps maintain the overall cleanliness of the campus.




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3. Incinerators for Sanitary Napkins: Installing incinerators at girls' toilets, girls' hostel, and a incinerator in CSE block is a responsible approach to disposing of sanitary napkins. This ensures the hygienic and eco-friendly disposal of these items, preventing potential health and environmental hazards.

The implementation of incineration facilities designed specifically for sanitary napkins presents a conscientious and forward-thinking strategy for the management of these personal hygiene products. By strategically siting incinerators within key locations such as girls' restrooms, the girls' hostel, and the Computer Science and Engineering (CSE) block, a multi-pronged approach to the responsible disposal of sanitary napkins is achieved. This initiative not only addresses the immediate sanitation needs of female students and staff but also underscores the significance of environmental sustainability.



Napkin Incinerator

The primary objective of introducing dedicated incineration units is to ensure the hygienic and ecologically sound elimination of sanitary napkins. Given the sensitive nature of these products,




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their proper disposal is of utmost importance. Inadequate or improper disposal can lead to a host of health and environmental concerns. Sanitary napkins are often made of materials that require careful handling to prevent contamination and potential harm to human health. Furthermore, the accumulation of used sanitary napkins in waste bins can emit foul odors and become a breeding ground for pathogens. This can not only jeopardize the well-being of individuals using these facilities but also compromise the overall cleanliness of the surroundings.

In addition to the immediate health considerations, the installation of incinerators serves to mitigate the ecological impact of sanitary napkin disposal. Traditional methods of disposal, such as land filling or incinerating alongside regular waste, contribute to the degradation of the environment. Sanitary napkins contain components that are not easily biodegradable, posing a long-term threat to soil and water quality. The widespread adoption of incineration units, specifically designed for these products, represents a proactive step towards minimizing the accumulation of non-biodegradable waste in landfills and reducing the risk of pollutants leaching into the ecosystem.



Incinerator



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The strategic placement of incinerators within the girls' restrooms, the girls' hostel, and the CSE block amplifies the convenience and accessibility of proper disposal facilities. Women and girls often face challenges in managing their hygiene needs in public spaces, particularly in educational institutions. The provision of dedicated incinerators within these spaces acknowledges and respects their unique requirements, fostering a more inclusive and supportive environment. Additionally, the availability of disposal facilities within the CSE block showcases the institution's commitment to integrating sustainability principles across all aspects of campus life, setting a precedent for responsible waste management.

The installation of incinerators tailored for the disposal of sanitary napkins is a commendable and prudent step towards promoting hygiene and sustainability. Placing these facilities in strategic locations demonstrates an understanding of the specific needs of the female population within the institution and showcases a commitment to environmentally conscious practices. By ensuring proper disposal of sanitary napkins, potential health risks are minimized, and the ecological footprint of the institution is reduced. This endeavor not only serves the immediate community but also contributes to the larger goal of creating a cleaner, healthier, and more environmentally aware campus environment.

4. Food Waste Management: Collecting food waste from the hostel and canteen for disposal to pig farms is a commendable practice. This practice not only helps in waste reduction but also contributes to the recycling of food waste as animal feed, which can be an environmentally friendly approach.

Food waste management has become an increasingly crucial concern in today's world, as the need to address environmental sustainability and resource efficiency gains greater prominence. One notable practice that has emerged on this front involves the collection and disposal of food waste from hostels and canteens to pig farms. This practice has garnered attention and praise for its multifaceted benefits, encompassing waste reduction, recycling, and the potential to establish an environmentally friendly approach to food waste management.




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Efficient Management of Liquid Waste: A Comprehensive Approach

In the realm of waste management, the effective handling of liquid waste presents a multifaceted challenge that requires innovative solutions. Liquid waste, stemming from diverse sources such as canteens, toilets, and laundry facilities, demands a meticulous approach to ensure both environmental sustainability and public health. This article delves into the intricate web of liquid waste management, exploring the disinfection processes employed and the essential role of drainage facilities and water treatment plants.

One of the primary sources of liquid waste within various establishments, ranging from commercial enterprises to educational institutions, is canteens. The culinary activities in these spaces generate a considerable volume of liquid waste, comprising food residues, cooking byproducts, and cleaning agents. To effectively manage this waste stream, a two-fold strategy is employed: containment and disinfection. Liquid waste is systematically collected and contained within dedicated receptacles, minimizing the risk of spillage and cross-contamination. Subsequently, advanced disinfection techniques are applied to neutralize any harmful pathogens or contaminants present in the liquid waste. This not only mitigates potential health hazards but also prepares the waste for safe disposal or further treatment.

Furthermore, liquid waste generated from restroom facilities constitutes another significant aspect of the waste management challenge. The constant influx of water from sinks, toilets, and showers results in a mixture of organic and inorganic substances, necessitating a tailored approach to handling and disposal. To address this, specialized drainage systems are designed to channel liquid waste to designated treatment areas. These drainage facilities are equipped with features such as filters and sedimentation tanks, allowing for the separation of solid particles from the liquid waste. This initial phase of treatment significantly reduces the pollutant load before the liquid waste undergoes subsequent processing.




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Waste Water treatment plant.

E –Waste Management

Electronic waste, commonly referred to as e-waste, has emerged as a significant environmental challenge in our increasingly digital world. As technological advancements continue to shape our lives, the rapid pace of innovation has led to a parallel increase in the generation of electronic devices. Consequently, the need for effective e-waste management has become paramount to mitigate the potential adverse impacts of improper disposal.

At the forefront of responsible e-waste management is the institution's dedicated approach to handling discarded electronic equipment. Within the confines of the institution, a streamlined and systematic process has been established to ensure the proper disposal of electronic waste. As




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computers reach the end of their useful life span, they undergo a meticulous collection procedure orchestrated by a team of designated technicians. Scouring the various corners of the campus, these technicians gather the discarded computers, laying the foundation for the subsequent stages of the e-waste management process.

Subsequent to their collection, these electronic relics are transported to the Campus Networking Centre (CNC), a central hub where the intricacies of e-waste management are meticulously executed. At the CNC, the computers undergo a comprehensive assessment, gauging the extent of their functionality and structural integrity. In cases where minor issues are identified, a team of skilled technicians diligently work towards repairing the equipment, breathing new life into these machines that once played crucial roles in the educational and administrative processes.

However, the road to resurrection is not always feasible for every device. Instances arise where the extent of damage is beyond repair, rendering the computer irredeemable. In such instances, the responsible course of action is the environmentally conscious disposal of these non-functional devices. Recognizing the potential hazards that improperly discarded electronics can pose to the environment and human health, the institution adopts stringent protocols for electronic waste disposal.

By adhering to these protocols, the institution not only demonstrates its commitment to sustainability but also safeguards against the potential leakage of hazardous components from electronic devices. Toxic materials, such as heavy metals and harmful chemicals, can seep into the environment when electronics are irresponsibly disposed of. The CNC's role in this process is thus not confined to just repair; it serves as a gatekeeper against the potentially harmful consequences of e-waste.

Furthermore, the institution's emphasis on e-waste management extends beyond its own boundaries. It endeavors to raise awareness among its stakeholders about the importance of responsible electronic waste disposal. This outreach effort serves to foster a culture of environmental stewardship, instilling in the campus community a sense of accountability towards the electronics that have served them well.



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In conclusion, the management of electronic waste represents a critical aspect of sustainable development in the digital age. The institution's approach to e-waste management stands as a testament to its commitment to environmental responsibility. Through a well-structured process that encompasses collection, assessment, repair, and disposal, the institution ensures that the legacy of its electronic devices is one that aligns with its broader sustainability goals. As the world grapples with the challenges posed by mounting e-waste, the institution's endeavors serve as a beacon of responsible action, illuminating the path towards a greener and more sustainable future.



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POLICY FOR THE DIFFERENTLY ABLED

This policy has been prepared to ensure that all members of MEA Engineering College are aware of the facilities provided for the people with disabilities. The college takes at most care in providing the needed amenities and creates an environment of inclusive education for students.

1. Assuring that the buildings, toilets, laboratories etc. are barrier free and accessible for all types of differently abled persons
2. Ensuring inclusion and effectiveness in the participation of differently abled students in curricular and co-curricular and extra-curricular activities
3. Adopting suitable medium and method of teaching for the differently abled students
4. Providing assistance to the students in the learning process apart from regular class hours ^{or}
5. Providing education and training resources or materials in the accessible format
6. Providing assistance for facility needed in taking up examinations
7. Permitting the people with disabilities to use their own personal assistive devices in the campus
8. Updating the facilities available for differently abled in the campus
9. Providing counselling sessions with a psychologist in the campus
10. Ensuring that the differently abled persons have equal opportunities for sports and games
11. Every member of the college is made aware of the amenities and facilities available for the disabled and support them to access the in-house resources.



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7.1.7: The Institution has disabled-friendly, barrier free environment

MEA Engineering College provides barrier-free environment where people with disabilities can move about safely and freely and use the facilities within the built environment. The environment supports the independent functioning of individuals so that they can participate without assistance in everyday activities within the campus. Buildings and places are made barrier free.

RAMP

Ramp-Rails, an inclined plane, are built in addition to staircases in the main block ,Computer Science and Engineering Block, Mechanical Engineering Block and also in Library . The ramps are carefully designed as per specifications to be used by the differently abled people.



RECEPTION COUNTER & PERSONAL ASSISTANCE

The Reception Counter provides all the needed information to the differently-abled and human assistance.



WHEELCHAIR

College provides wheelchair for barrier free access for students, staff, visitors and differently abled people.



DIFFERENTLY ABLED FRIENDLY RESTROOM

There are two differently abled friendly restrooms in main Block and in D Block. These accessible restrooms carry the fixtures and fittings that are comfortable and convenient to the differently abled people. Non-slip floor provide easy access to the differently abled people.



GPS Map Camera

Malappuram, KL, India

Perinthalmanna, Malappuram, 679325, KL, India

Lat 11.038098, Long 76.262890

08/23/2023 04:16 PM GMT+05:30

Note : Captured by GPS Map Camera

Signage including tactile path

Inside MEA Engineering College Campus there are several signage and display to direct the building or department or the facilities available in the institute. Tactile paths are also provided in order to walk freely in the campus. It is important to note that tactile paths are just one component of creating an accessible environment for individuals with visual impairments. Other considerations such as auditory signals at intersections and well-designed signage , also play crucial roles in ensuring that people with disabilities can navigate their surroundings safely and independently.

Ambulance

MEA Engineering college has it's own Ambulance for health assistance and to give medical assistance for physically handicapped people. Ambulance assistance for disabled people can offer several important benefits that are crucial for the wellbeing and safety.



Tactile Paths



Signage to direct way to a building or department



College Ambulance



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Environmental Consciousness and Sustainability

7.1.2. The Institution has facilities for alternate sources of energy and energy conservation measures

1. Solar energy
2. Biogas plant
3. Wheeling to Grid
4. Sensor based energy conservation
5. Use of LED bulbs/power efficient equipment

Solar energy

The institution has installed a 40KWp On Grid Solar PV system during March 2018. Solar PV system is installed in car parking area -24 meters X 14 meters. Solar car parks offer additional benefits beyond electricity generation. They can power electric vehicle (EV) charging stations, particularly where cars are parked for extended periods. This symbiotic relationship between solar power and EV charging contributes to the overall sustainability of transportation.



Wheeling to Grid

The institute is transferring the solar PV system generated electrical power to the Grid of Kerala State Electricity Board (KSEB) to cater the power demands of the area during the peak demand time. The solar power generated is fed to the institute load and the excess solar power can be supplied to the grid during times when the institute's electricity demand is lower than the solar generation. This helps the grid meet the power demands of the surrounding area during peak times, reducing strain on the grid infrastructure.



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Sensor based energy conservation

Implementing a sensor-based Automatic Power Factor Control (APFC) panel is a proactive and effective approach to energy conservation within the institute's campus. APFC panels continuously monitor the power factor and automatically adjust capacitor banks to optimize it. This results in more efficient use of electrical power and reduced energy wastage, leading to lower electricity consumption. The implementation of a sensor-based Automatic Power Factor Control panel is a wise step toward energy conservation and cost savings for the institute. It aligns with the broader goal of sustainability and responsible energy management within the campus.



Use of LED bulbs/power efficient equipment

Utilizing LED bulbs and power-efficient equipment is a straightforward and effective way to reduce energy consumption, lower electricity bills, and contribute to a more sustainable and environmentally friendly environment. It aligns with energy conservation goals and demonstrates a commitment to responsible energy management. Illuminating the institute's



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office, reception area, Principal's office, Vice Principal's office, Dean's office, and HoDs' chambers using LED bulbs is a practical and energy-efficient choice.



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7.1.4 Water Conservation Facilities Available in the Institution

1. Rainwater Harvesting

The institute has implemented rain water harvesting system in the campus with a strong desire to utilize the rain water at maximum extent. In the forefront to save water, our institute has initiated and executed the rainwater harvesting in the campus. Rainwater harvesting facility is done in Civil block to collect rainwater from the roof of all buildings. The harvested water is diverted to open wells in institute campus, Men's Hostel and ladies hostel. The placement of rainwater facility within the campus is decided upon by considering the profile of the land so as to drain the maximum amount of water collected with ease. Underground connections are ensured to connect the collected water from the roof top to the rainwater recharge pit. It was also ensured that the rainwater harvesting structures are constructed as per the norms. This initiative took shape when the institute faced shortage of water during summer. Cost of buying water was becoming a financial burden. The only alternative to the water crisis was to use the available water more effectively.



Figure 1: Rainwater harvesting tank

2. Open wells and Borewells

Open wells and Borewells are crucial water sources in our institution. Open wells are lined with stones to prevent collapse. Bore wells are also drilled and equipped with pipes to draw water from the deep-water table during times of Drought

Both the open wells and borewells play vital role in providing water for various purposes in institutions, such as drinking, sanitation, use in Different labs and other operational needs. It is maintained and monitored to ensure a sustainable and reliable water supply.



Figure 2: Open wells and Borewells

3. Construction of Tanks and bunds

Rainwater harvesting Tank is constructed in Civil block to collect rainwater from the roof of all buildings. The Collected water is diverted to open wells in institute campus, Men's Hostel and ladies hostel. The placement of rainwater facility within the campus is decided upon by considering the profile of the land so as to drain the maximum amount of water collected with ease Underground connections are ensured to connect the collected water from the roof top to the rainwater recharge pit.



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Figure 3: Rainwater harvesting tank

4. Waste water Recycling.

The University has taken tremendous efforts to reduce the water consumption and also to treat the wastewater generated within the campus so that it can be effectively reused for gardening and toilet flushing. It is under consideration and will be practical in the near future

5. Maintenance of waterbodies and distribution system in the campus

Maintaining and distributing water bodies is ensured for sustainable and reliable water supply.

Maintenance of water bodies is done for preserving their quality and functionality. This includes regular cleaning to remove debris and silt, repairing any structural damage, ensuring proper drainage systems, and implementing measures to prevent pollution. Additionally, periodic testing of water quality is done to monitor contaminants and to ensure it meets regulatory standards.

Distribution of water bodies is done for efficient and equitable allocation of water resources to different users or areas. This includes a network of pipes, channels, and infrastructure to transport water from its source to where it's needed. Proper distribution is done considering the factors like demand, distance, elevation changes, and storage capacity.

Efficient distribution systems include pumps, valves, and control mechanisms to regulate flow rates and pressures.

It's important to manage water bodies sustainably to meet the needs of the present without compromising the ability of future generations to meet their own needs. This involves considering factors like conservation, source protection, and adopting technologies that promote efficient use of water resources.

A handwritten signature in green ink, appearing to read 'Samir', is located in the bottom right corner of the page. The signature is written in a cursive style with a long horizontal stroke extending to the right.



Figure 4: Water distribution system in the campus

A green handwritten signature, possibly reading 'Kannan', is written in a cursive style on the right side of the page.