7.1.3 : Describe the facilities in the Institution for the management of the following types of degradable and non-degradable waste (within 200 words)

INDEX Metric No: 7.1.3

Sr.No.	Particular
01	Solid waste management
02	Liquid waste management
03	E-waste management
04	Waste recycling system
05	Hazardous chemicals and radioactive waste management

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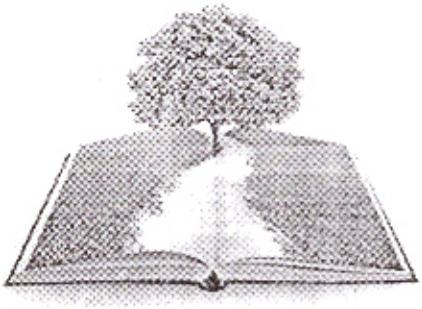
Solid Waste Management: The campus segregates waste at the source into biodegradable and non-biodegradable categories. Organic waste is composted in designated pits or biogas plants, producing manure for landscaping. Non-biodegradable waste, like plastics and metals, is collected by authorized recycling vendors.

Liquid Waste Management: Effluent Treatment Plants (ETPs) ensure the safe treatment of wastewater from laboratories and canteens. Treated water is reused for irrigation and cleaning purposes, minimizing environmental impact.

Waste Recycling System: The institution encourages recycling through initiatives like paper and plastic recycling units. Used papers and cardboard are sent to recycling agencies, while e-waste is managed through tie-ups with certified disposal companies.

Hazardous Chemicals Management: Chemicals from the Chemistry and Environment Labs are handled carefully. Waste is segregated, neutralized where possible, and stored securely before being handed over to authorized hazardous waste disposal agencies. Strict compliance with environmental regulations ensures no harmful impact on surroundings.

These practices reflect the institution's commitment to sustainability, environmental responsibility, and compliance with waste management standards.



The Green Campus and Environmental Policy

Dr.J.J.Magdum Trust's

Dr.J.J.Magdum College of Engineering, Jaysingpur.

Your Dream... Our Mission....

Scope of the Policy:

The Green Campus and Environment Policy will develop exciting new co-curricular and extracurricular practices that encourage students and staff to take the lead in creating positive change. These initiatives call for a thorough review of all infrastructural, administrative functions from the standpoints of energy efficiency, sustainability and the environment.

The focus areas of this policy are:

- Clean Campus Initiatives
- Landscaping Initiatives
- Clean Air Initiatives
- Infrastructure
  - Solar Power Plant
  - Installation of Energy Efficiency Equipment
  - Water Conservation through Rainwater Harvesting System
- **Waste Management processes**
  - Solid Waste Management
  - Liquid Waste Management
  - E-Waste Management
- **Awareness Initiatives**

→ Environment-centric Student Societies and Department Activities

→ Green Audit

→ Energy Audit

→ Plastic-Free Campus

J.J.MAGDUM COLLEGE

Objectives of the Policy:

- To protect and conserve the environment, judicious use of environmental resources within the campus.
- To work with all stakeholders and the local community to raise awareness and seek the adoption of environmental good practice and the reduction of any adverse effects on theenvironment.
- To make the campus plastic and environmental pollution free
- To integrate environmental concerns into policies, plans and programmes for social development and outreach activities.
- To continuously improve our contribution to climate protection and adaptation to climate change and to the conservation of global resources.
- To continuously improve the efficient use of all resources, including energy and water, and to reduce consumption and the amount of waste produced, recovering and recycling waste where possible.
- To minimize the use of paper in administration through having policy for E-governance.
- To conduct environmental and energy audits from time to time from certified company.

Policy:

DR. J.J. MAGDUM COLLEGE OF ENGINEERING JAYSINGPUR

Clean Campus Initiatives

Dr.J.J.Magdum college of Engineering, Jaysingpur had pledged to actively coordinate cleanliness activities, tree plantation program , Plastic and environmental pollution free area in the college and beyond the campus in accordance with the vision of Swachh Bharat Abhiyan & Mazi Vasundhara Abhiyan. It commits to continue with this Programme.

The broad vision is as follows:

1. Generating mass awareness on cleanliness and hygiene amongst students and staff members by holding regular cleanliness drives. The idea is to motivate them to contribute in a proactive manner.
2. Activities under 'Swachh Bharat Abhiyan' and 'Mazi Vasundhara Abhiyan' will be a key component of all the communitywork being done by NSS and Green Warrior volunteers of the college.
3. Staff Members and students will be encouraged to participate in the cleanliness, Water conservation practices, Vehicle free day, Tree plantation program /Harit Shapath (Green Oath) drive in the college campus.
4. Administer of the pledge by students and staff members to maintain cleanliness of the college campus and its surrounding areas on an annual basis.
5. Conduct various environmental days, tree plantation program, water conservation practices, and solid waste management, less use of paper, workshops and guest lectures, saving of electricity for conservation of environment.
6. Conduct workshops on the 5 Rs: Reduce, Reusing, Recycle, Refuse and Repair of waste. Also commit to manage waste and maintain clean campus especially during college events.

Landscaping Initiatives

It is a vital part of the life of a campus, providing space for study, play, outdoor events, relaxation and aesthetic appreciation. Green campus landscapes also manage runoff, help recharge groundwater, and clean and cool the air on campus. The landscape serves as a visual representation of the campus community's commitment to sustainability. As campus landscapes are so visible and accessible, landscaping initiatives are a great way to build awareness around the environment.

There are more than 110 trees and more than 150 shrubs on campus along with 0.20 acre of grass cover. The landscape of trees and plants provide the 1700 + studentsand staff with clean and cool air and is a soothing environment.

The diverse green cover of Dr.J.J.Magdum College of Engineering is also home to a number of rare birds, plants species creating a campus rich in biodiversity. The college commits to enriching this healthy habitat and maintaining the symbiotic relation of the institution with nature by

- Organizing annual tree plantation drives within and outside of college campus as well as in college adopted villages.
- Encouraging student through Environmental Studies subject.

Clean Air Initiatives

We encourage our students and staff to use public transportation. The entry of automobiles inside the campus is restricted to discourage the use of private vehicles by celebrating No Vehicle Day program. Our campus is also located rural part of Kolhapur. For this reason, we feel responsible ɒ maintain our green cover. The abundant natural landscape cleans the air on campus.

Infrastructural Initiatives

Renewable Sources of Energy

Dr.J.J.Magdum college of Engineering is dedicated to minimize and sustainably manage its use of electricity. The college believes in reducing the consumption ofelectricity produced by non-renewable resources by switching to clean energy sources like solar energy for purposes like lighting the campus. Hence solar panels were installed on top roof of the Ladies Hostel and Solar Street light within college campus.

Energy Saving and Energy Efficient Equipment

We commit to install environment-friendly electrical appliances that save energy and reduce wasteful inefficiencies. The college believes in using cleaner energy such as LED lighting and star rating equipments.

Water Conservation through Rainwater Harvesting System

Dr.J.J.Magdum College of Engineering has committed itself to the effort to replenish the groundwater table by practicing rainwater harvesting. This practice helpsin the replenishment and recharge of the groundwater and bore well also.

Waste Management Processes

Dr.J.J.Magdum College of Engineering strives to have a minimal impact on the environment and is dedicated to reduce and manage the waste generated by the college campus. The following specific procedures will be undertaken to ensure by Dr.J.J.Magdum College of Engineering, Jaysingpur contribution in protecting the environment.

Solid Waste Management

With its aim to provide holistic education that also has a positive impact on the environment, the college will adopt practices that will mitigate the generation, and manage solid waste through the following methods:

1. Systematically engage with the 5Rs of environment friendliness (Reduce, Reuse , Recycle, Refuse and Repair)
2. Collect paper waste produced on campus and collaborate with scrap dealers for recycling.
3. Reduce use of paper, use of one side paper by supporting digitization of attendance and internal assessment records.
4. Reduce requirement of printed books by updating the e-books and e-journals collection of the college library.
5. Kept separate dust bins for wet and dry waste.
6. Take initiatives to spread awareness amongst students about
    - Food wastage and ways of minimizing it
    - Minimizing the use of packaged food

- Use of solid waste for bio-gas generation.
- Use of degradable for composting purpose.
- The habit of reusing and recycling non-biodegradable products

Liquid Waste Management

1. Maintain leak proof water fixtures.
2. Minimize the use of water by constructing more Indian style toilets insteadof western style toilets.
3. Continued employment of a caretaker to take immediate steps to stop anywater leakage through taps pipes, tanks, toilet flush etc.
4. Reuse of wastewater generated by the Reverse Osmosis (RO) system is used for gardening purpose.
5. Percolation pit and recharge bore well by rainwater.

E-Waste Management

Dr.J.J.Magdum College of Engineering ensures that its usage of technology and generation of e-waste does not impact the environment. For this purpose, the college plans to strive towards:

1. More provisions for the disposal of the institutional e-waste.
2. Awareness amongst students about reduction of e-waste and environment friendlydisposal practices for e-waste.
3. Encouraging department and society level activities pertaining to e-waste management.
4. E-waste is given to external agencies for recycling purposes.

Awareness Initiatives

Outreach and education are of utmost importance so that all members of the campus community may value the objectives of the policy and aid in its implementation. Campus is located in the vicinity of many trees (species) to maintain the bio-diversity. Various tree plantation programs are being organized at college campus and surrounding villages through NSS (National Service Scheme) unit. This program helps in encouraging eco-friendly environment which provides pure oxygen within the institute and awareness among villagers. The plantation program includes various type of indigenous species of ornamental and medicinal wild plant species. This is why Dr.J.J.Magdum College of Engineering supports and encourages awareness campaigns, seminars, workshops, conferences and other interactive sessions to facilitate effective implementation of the Green Campus, Energy and Environment policies.

Disabled friendly , barriers free environment:

Dr.J.J.Magdum college of Engineering, Jaysingpur 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 / places / transportation systems are made barrier free.

1. College is providing, Rams for various building in college campus.
2. Lift for main building

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7.1.3 – **Describe the facilities in the Institution for the management of the following types of degradable and non-degradable waste (within 200 words) Solid waste management Liquid waste management Biomedical waste management E-waste management Waste recycling system Hazardous chemicals and radioactive waste management.**

Environmental Consciousness and Sustainability.

a) Solid Waste Management: Bio degradable solid waste is collected from college campus and dumped in constructed pits, which are then covered with locally available soil in alternate layers, till pit is completely filled. When one pit is filled completely then second pit is used for dumping. After 45 to 60 days good quality compost is obtained which is used as manure for the trees in the campus. Apart from this old newspaper, waste papers and cartons are sold to the local vendor.

b) Liquid Waste Management:

In the college campus 60,000 liter waste water is generated every day. This waste water is being treated by -

A) Equalization and grit chamber: This tank is provided to meet fluctuations, removing grit in waste water generation. The clear water is then sent to percolation tank.

B) Chemical Effluent Treatment pit- Waste water from environmental engineering lab and Chemistry Lab was supposed to collect in the constructed pit which is filled with layers of broken coal, broken bricks, sand and salt.

Brown garden waste is treated by horizontal rotating drum.

C) E-waste management: E-waste generated are given to vendors for buyback purpose while purchasing new components.

Brief report of Biogas unit:

It mainly comprises of hydro-carbon which is combustible and can produce het and energy when burnt. Bio-gas is produced through a bio-chemical process in which certain types of bacteria convert the biological wastes into useful bio-gas. Since the useful gas originates from biological process, it has been termed as bio-gas. Methane gas is the main constituent of biogas

Advantages of biogas production-

1. It is a eco-friendly fuel.
2. The required raw materials for biogas production is available in college canteen.
3. It not only produces biogas, but also gives us nutrient rich slurry that can be used for crop Production.
4. It prevents the health hazards of smoke in poorly ventilated rural households that use dung cake and fire-wood for cooking.
5. It helps to keep the environment clean, as there would be no open heap of dung or other waste materials that attract flies, insects and infections.
6. Availability of biogas would reduce the use of firewood and hence trees could be saved.

Components of biogas plants-

Mixing tank - The feed material (dung) is collected in the mixing tank. Sufficient water is added and the material is thoroughly mixed till a homogeneous slurry formed.

Inlet pipe - The substrate is discharged into the digester through the inlet pipe/tank

Digester The slurry is fermented inside the digester and biogas is produced through bacterial action.

Gas holder or gas storage dome - The biogas gets collected in the gas holder, which holds the gas until the time of consumption.

Outlet pipe- The digested slurry is discharged into the outlet tank either through the outlet pipe or the opening provided in the digested.

Gas pipeline - The gas pipeline carries the gas to the point of utilization, such as a stove or lamp.

Production of Gas

Average gas production from dung may be taken as 10 t/kg. of fresh dung or kitchen waste, when ne temperature control is provided in the plant. One Cu.m gas is equivalent to 1000 litres. 1Kg of food waste (sugar, starch, cellulose, protein or fat) yields 1 Kg biogas in 1d instead of 40 kg dung required in 40d.

Prof K G Ghodake
Dept of Civil Engg

Dr J S Lambe
HOD Civil Engg

DR. J. J. MAGDUM COLLEGE OF ENGINEERING
DEPARTMENT OF CIVIL ENGINEERING
JAYSINGPUR - 416 101.

Brief report of Percolation Tank

Percolation tank is an artificially created surface water body, submerging in its reservoir a highly permeable land, so that surface runoff is made to percolate and recharge the ground water storage.

1. Percolation tank is an artificially created surface water body, submerging in its reservoir a highly permeable land so that surface runoff is made to percolate and recharge the ground water storage.

2. Percolation tank should be constructed preferable on second to third order streams, located on highly fractured and weathered rocks which have lateral continuity down stream

3. The size of percolation tank should be governed by percolation capacity of strata in the tank bed. Normally percolation tanks are designed for storage capacity of 0.1 to 0.5 MCM. It is necessary to design the tank to provide a ponded water column generally between 3 & 4.5 m.

4. The percolation tanks are mostly just like earthen dams with masonry structure only for spillway. The purpose of the percolation tank is to recharge the ground water storage and hence seepage below the seat of the bed is permissible. For dams upto 4.5 m. height, cut off trenches are not necessary and keying and benching between the dam seat and the natural ground is sufficient

Prof K G Ghodake
Dept of Civil Engg

Dr J S Lambe
HOD Civil Engg

DR. J. J. MAGDUM COLLEGE OF ENGINEERING
DEPARTMENT OF CIVIL ENGINEERING
JAYSINGPUR - 416 101.

Brief report of Waste water treatment unit

A. Grit Chambers

Grit chambers are long narrow tanks that are designed to slow down the flow so that solids such as sand, coffee grounds, and eggshells will settle out of the water. Grit causes excessive wear and tear on pumps and other plant equipment Grit is composed of small coarse particles of sand, gravel, or other minute mineral material. Grit is removed to prevent damage to mechanical equipment and to maintain tank volume capacities.

Waste water is generated in various areas of college campus. It's specially designed for canteen and nearby toilet blocks.

B. Soak Pit

A soak pit or a soakaway is a closed porous chamber that is directly connected to a primary treatment unit of building. It serves the function of letting the wastewater coming from the septic tank and grit chambers to slowly soak into the underlying ground.

1. Soak pit serves the purpose of receiving the effluent water from the primary treatment unit.
2. Soak pit undergoes the partial treatment of the effluent water coming out of the primary treatment unit.
3. The soak pit discharges clear and non-harmful water to the ground.
4. The soak pit is designed in a such a way that the treated water comes out of the porous walls of the soak pit.
5. The soak pit helps to recharge the groundwater bodies.

Prof K G Ghodake
Dept of Civil Engg

Dr J S Lambe
HOD Civil Engg

DR. J. J. MAGDUM COLLEGE OF ENGINEERING
DEPARTMENT OF CIVIL ENGINEERING
JAYSINGPUR - 416 101.

Separation of Dry & Wet waste

Chemical Effluent

Grit Chamber

Percolation Tank