



Standard Operating Procedure (SOP) for Degradable and Non-Degradable Waste Management

1. Introduction: Keshav Memorial Institute of Commerce and Sciences (KMICS) recognizes the critical importance of effective waste management in preserving environmental health and promoting sustainable development. As part of our institutional values and social responsibilities, KMICS is committed to implementing robust waste management practices to minimize the environmental impact of our operations. This SOP outlines the procedures for managing both degradable and non-degradable waste at KMICS, taking into account local (Hyderabad), state (Telangana), Indian, and global contexts.

2. Local Context (Hyderabad): Hyderabad, like many urban centers, faces significant challenges in waste management due to rapid urbanization and population growth. Improper disposal of waste leads to environmental pollution, health hazards, and strain on municipal resources. KMICS recognizes the need to address these challenges at the local level by implementing sustainable waste management practices that mitigate environmental impact and contribute to the well-being of the community.

3. State Context (Telangana): The state of Telangana has implemented various initiatives to improve waste management practices and achieve sustainable development goals. However, there is still a need for concerted efforts from institutions like KMICS to support state-wide waste management initiatives and ensure compliance with relevant regulations and standards. By aligning our waste management practices with state policies and guidelines, KMICS aims to contribute to the overall environmental sustainability of Telangana.

4. Indian Context: At the national level, India is facing an escalating waste management crisis, with increasing volumes of waste generated each year. The Government of India has introduced initiatives such as the Swachh Bharat Mission and the Solid Waste Management Rules to address these challenges. KMICS recognizes its role in supporting these national initiatives by implementing efficient waste management practices that reduce waste generation, promote recycling and composting, and minimize landfill disposal.

5. Global Context: Globally, waste management has emerged as a critical environmental issue, with growing concerns about plastic pollution, electronic waste, and the impact of waste on marine ecosystems. International frameworks such as the United Nations Sustainable Development Goals (SDGs) emphasize the importance of sustainable consumption and production patterns, including responsible waste management practices. By aligning our waste management SOP with global best practices, KMICS aims to contribute to global efforts to address the waste management crisis.

6. Challenges and Solutions: Challenges:

- Need for increased awareness among students, faculty, and staff about proper waste segregation and disposal practices.
- Need for enhanced infrastructure and resources for waste management on campus.
- Need for enhanced monitoring and enforcement of waste management policies.
- Increasing volumes of non-degradable waste, particularly plastics and electronic waste.


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Solutions:

- **Awareness Campaigns:** Conduct regular awareness campaigns and training sessions to educate the KMICS community about the importance of waste segregation and recycling.
- **Infrastructure Development:** Invest in infrastructure such as waste segregation bins, composting units, and recycling facilities to support effective waste management on campus.
- **Monitoring and Enforcement:** Implement strict monitoring mechanisms to ensure compliance with waste management policies and regulations, including regular inspections and audits.
- **Reduce, Reuse, Recycle:** Promote the principles of reduce, reuse, and recycle to minimize waste generation and maximize resource efficiency.
- **E-Waste Management:** Partner with certified e-waste recyclers to properly dispose of electronic waste and prevent environmental contamination.

7. SOP for Degradable and Non-Degradable Waste Management:

a. Waste Segregation:

- All waste generated on campus must be segregated into two categories: degradable and non-degradable.
- Degradable waste includes organic materials such as food waste, paper, and garden waste.
- Non-degradable waste includes materials such as plastics, glass, metals, and electronic waste.

b. Collection and Storage:

- Separate bins labeled for degradable and non-degradable waste must be placed at strategic locations across the campus.
- Waste collection teams are responsible for emptying the bins regularly and transporting the waste to designated storage areas.

c. Composting (Degradable Waste):

- Organic waste collected from campus kitchens and gardens will be sent to composting units for processing.
- Compost generated from organic waste will be used to fertilize campus gardens and green spaces.

d. Recycling (Non-Degradable Waste):

- Non-degradable waste such as plastics, glass, and metals will be sent for recycling through authorized recycling partners.
- Electronic waste will be collected separately and sent to certified e-waste recyclers for safe disposal and recycling.

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e. Disposal of Residual Waste:

- Any residual waste that cannot be composted or recycled will be disposed of in accordance with municipal solid waste disposal guidelines.
- KMICS will work with local authorities to ensure proper disposal of residual waste and minimize environmental impact.

f. Monitoring and Evaluation:

- Regular audits and inspections will be conducted to monitor the effectiveness of waste management practices at KMICS.
- Feedback from students, faculty, and staff will be solicited to identify areas for improvement and address any issues or concerns.

8. Conclusion: In conclusion, KMICS is committed to implementing effective waste management practices that contribute to environmental sustainability and social responsibility. By following this SOP for managing both degradable and non-degradable waste, KMICS aims to minimize its environmental footprint, support local and state-wide waste management initiatives, and contribute to global efforts to address the waste management crisis. Together, we can create a cleaner, healthier, and more sustainable environment for current and future generations.

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Management of the various types of degradable and non-degradable waste

WASTE MANAGEMENT Policy of Keshav Memorial Institute of Commerce & Sciences underlines our commitment with regard to sustainable waste management. It outlines a set of agreed aims and deliverables for all aspects of sustainability, including recycling and waste management.

The college adheres to the following principles of the waste management:

- Prevent – avoid creating waste
- Reduce – minimizing the amount of waste produced
- Reuse – repair, refurbish or relocate items
- Recycle – promote segregation of waste to increase the quantity of waste recycled Recovery – send non-recyclable waste to energy recovery
- Disposal – this will only be used as a last resort if all other options are exhausted

SOLID WASTE MANAGEMENT:

- Measures shall be taken for minimal or optimal use of papers: Instead of taking hard copies of documents, keep in digital format as far as possible.
- Strategies to lessen the generation of paper waste are adopted: double-sided printing, printing in reduced font size, printing in "fast draft" mode etc.
- E-billing is promoted to reduce use of paper.
- Use of paperclips (over staples) is encouraged.
- Reusing of envelopes with metal clasps and file folders by sticking a new label over the previous one is promoted.
- Colour coded dustbin system is employed for segregation of solid waste.
- Green dustbins for biodegradable wastes like food.
- Blue dustbins for disposal of plastic wrappers and non- biodegradable wastes.
- Partial Food waste is used to generate fertilizer using the Bokashi- plant installed in the campus.
- Cleaning or emptying of dustbins is ensured at regular intervals daily.
- Sanitary napkins are disposed in incinerators installed in the campus.

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Dry waste and wet waste bins in the campus

LIQUID WASTE MANAGEMENT:

Next to air, water is the most important element for the preservation of life. Water is a finite commodity which, if not managed properly, will result in shortages in the near future. Water conservation can go a long way to help alleviate these impending shortages. Students are made aware that conserving water is equivalent to conserving their future. Drinking water from the tap, and refilling bottle as often as the students need is one of the best practices followed at campus. Disposable bottles are not allowed.

E-WASTE MANAGEMENT:

With the proliferation of electronics also comes the challenge of their proper disposal. E-wastes are generated from computer laboratories, electronic labs, Physics Labs, Chemistry Lab, Biotech Labs, Academic and Administrative Offices. The e-waste includes out of order equipment's or obsolete items like lab instruments, circuits, desktops, laptops and accessories, printer, charging and network cables, Wi-Fi devices, cartridges, sound systems, display units, UPS, Biometric Machine, scientific instruments etc. All these wastes are put to optimal use. All such equipment's which cannot be reused or recycled is being disposed off through authorized vendors. Instead of a new procurement Buy-Back option is preferred for technology up gradation. Our college also take an initiative in reducing the digital divide in the rapidly growing digital world. The e-waste of the college is generally not thrown into garbage. Instead, these unwanted/excess computer machines / devices / printers / scanners / keyboards / mouse etc. are transferred or distributed to the school coming under Keshav Memorial Educational Society. E Waste collected is stored and disposed off annually. Students are also made aware of E-Waste issues and its safe disposal.

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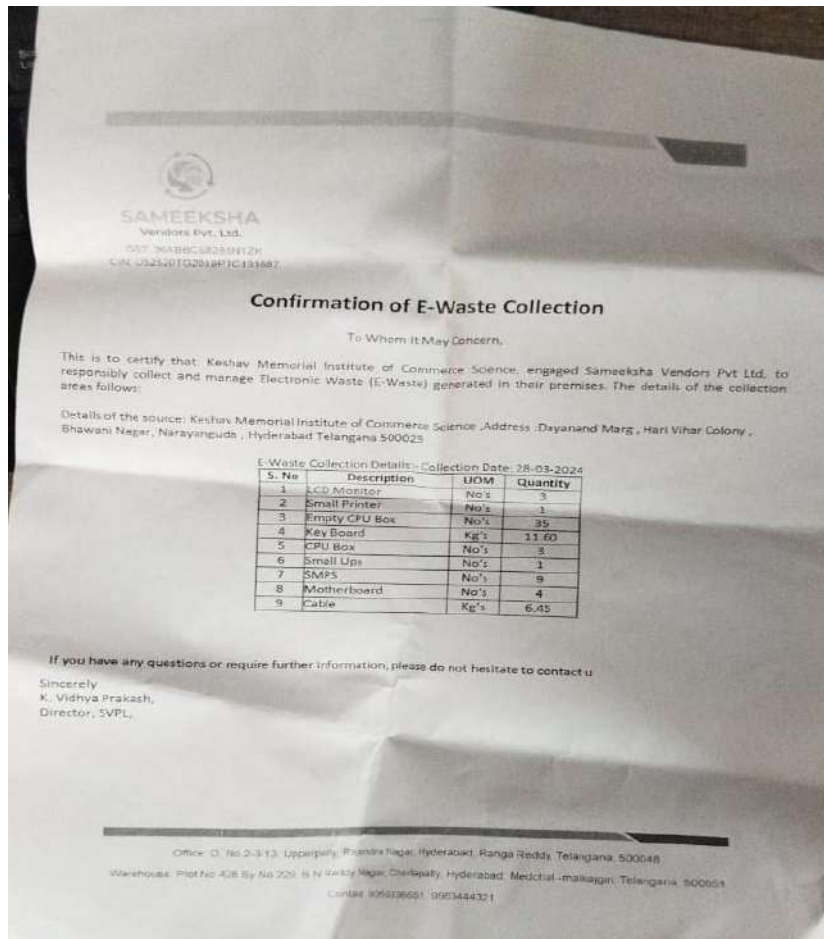
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Awareness Program on Environmental hazardous of E-Waste

IQAC of our college conducted awareness programme on Environmental hazardous of E-Waste with the support Government of India. Ms.Sriya was the resource person.



E-Waste Collection Details:- Collection Date: 28-03-2024

S. No	Description	UOM	Quantity
1	LCD Monitor	No's	3
2	Small Printer	No's	1
3	Empty CPU Box	No's	35
4	Key Board	Kg's	11.60
5	CPU Box	No's	1
6	Small Ups	No's	3
7	SMPS	No's	9
8	Motherboard	No's	4
9	Cable	Kg's	6.45

If you have any questions or require further information, please do not hesitate to contact us
Sincerely
K. Vidhya Prakash,
Director, SVPL,

Office: C/ No 2-3-13, Upperpally, Ferozpur Nagar, Hyderabad, Rangareddy, Telangana, 500048
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HAZARDOUS CHEMICALS WASTE MANAGEMENT:

- Implement Lab Pack Service: The lab pack disposal process involves first identifying, categorizing, and segregating each chemical by type (solvent, acid, or base), re-packaging them, then depositing the packaged chemicals into a drum or a tank. (Black bin)
- Academic strategies are taken to reduce the amount of chemical waste generated in the laboratories.
- Promote existing reuse schemes and develop additional recycling schemes to stream more waste at source.
- Communicate effectively with our employees, students, and residences to increase engagement and participation in the recycling initiatives across campus.

Campus is free from any kind of hazardous waste. Ideally, collection, transportation and proper handling of chemicals begin with understanding the potential hazards related to their use. All stakeholders, especially from Academic departments and laboratories are responsible for disseminating information on hazardous materials being used in the facility. Various types of chemicals are used in chemistry labs for number of experiments in the college. Some might be harmful while others may not.

General procedures while working with hazardous chemicals –

1. Personal behaviour.
2. Minimizing exposure to hazardous chemicals.
3. Avoiding Eye injury.
4. Avoiding ingestion of hazardous chemicals.
5. Avoiding inhalation of hazardous chemicals.
6. Avoiding injection of hazardous chemicals.
7. Minimizing skin contact.
8. Storage of chemicals.
9. Use & maintenance of equipment and glassware.
10. Working with scaled-up reactions.
11. Responsibility for unattended experiments & working alone.
12. Chemistry demonstration & Magic shows.


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13. Responding to accidents and emergencies.

14. Handling the accidental release of hazardous substance.

Four fundamental principles followed in the labs are –

1. Plan ahead: Determine the potential hazards associated without an experiment before beginning.
2. Minimize exposure to chemicals: Do not allow laboratory chemicals to come in contact with skin. Use laboratory chemical hoods and other ventilation devices to prevent exposure to airborne substance whenever possible.
3. Do not underestimate hazards or risk: Assume that any mixture of chemicals will be more toxic than its most toxic component. Treat all new compounds and substances of unknown toxicity as toxic substances.
4. Be prepared for accident: Before beginning an experiment know what specific action to take in the event of accidentally release of any hazardous substance. Post telephone number to call in an emergency or accident in a prominent location. Know the location of all safety equipment and the nearest fire alarm and telephone. Be prepared to provide basic emergency treatment. Keep your co-workers informed of your activities so they can respond appropriately.

BIO-MEDICAL WASTE MANAGEMENT:

The management of biomedical waste involves a structured series of stages, commencing with waste generation, followed by accumulation, proper handling, storage, treatment, transportation, and final disposal. The establishment and execution of a comprehensive national waste management policy can significantly enhance the management of biomedical waste within healthcare facilities throughout a country. At our institution, we prioritize the conscientious disposal of biomedical waste, such as used napkins. This is achieved through an environmentally friendly method, utilizing an incinerator to burn the napkins and transform them into ash. This approach exemplifies our commitment to sustainable and responsible waste management practices.

Incinerator in the Girls' Common Room



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