



JSS Academy of Higher Education & Research
(Deemed to be University)
Accredited 'A+' Grade by NAAC
Sri Shivarathreeswara Nagara
Mysuru – 570 015, Karnataka, INDIA

JSS Academy of Higher Education & Research

Mysuru

Waste disposal Policy



*“Reduce – Recycle – Reuse” is a social responsibility, let us work together
for a better tomorrow*

Waste disposal Policy Statement

This policy document contains information on the procedure being followed at the JSS Academia of Higher Education & Research and its constituent colleges and departments. The document is prepared based on the Central Pollution Control Board, Govt of India and Karnataka State Pollution Control Board guidelines. The document will undergo revision as and when the central pollution control board makes amendments / changes and also as per the academia documentation policy. Sharing or copying the information in written, photocopy or any other mode without prior consent of the academia is discouraged.

JSS ACADEMY

Key personnel in waste disposal management

S No	Waste Disposal Activity	Function	Key Personnel	Contact details
1	Solid waste	Supervision of Collection and disposal	Mr Prashanth	9980613010
2	Green waste	Supervision of Collection and disposal	Mr Shivamanju	9886260635
3	E-waste	Supervision of Collection and disposal	Dr Ravindra	8105278665
4	Radioactive waste	Supervision of Collection and disposal	Dr Mahesh KP	9845189703
5	Biomedical waste	Supervision of collection and disposal of Biomedical waste disposal <ul style="list-style-type: none"> ▪ Collection ▪ Segregation at source ▪ Packing and Transport to central storage area ▪ Storage and Handover to CBMWTF 	Dr Saravana Babu C	9042222277
		Disposal	Mr Umesh	9900970844
		Updating of biomedical waste register		
		Updating and Display of reports on website		

JSS Academy of Higher Education & Research

JSS Academy of Higher Education & Research (JSS AHER), formerly known as JSS University, is a deemed to be university located in Mysore, Karnataka. It was established in the year 2008 under Section 3 of the UGC Act 1956. JSS AHER is recognized by MOE and accredited with A⁺ Grade (CGPA of 3.48 out of 4) by National Assessment and Accreditation Council (NAAC) during re-accreditation in 2018. National Institutional Ranking Framework (NIRF) has listed JSSAHER at 37 ranks in the Universities Category. JSS AHER has the credit of being the top YOUNG University in the Karnataka State Universities Rating Framework (KSURF).

JSS AHER focuses on Medical and health-sciences studies through its constituent colleges, JSS Medical College, JSS Dental College & Hospital, JSS College of Pharmacy, Mysuru and JSS College of Pharmacy in Ootacamund, School of Life Science, Mysuru, School of Life Science, Ooty, School of Public Health. The other university departments include Department of Health System Management Studies, Department of Nutrition and Dietetics, Department of Yoga, Department of Environmental Sciences, Department of Microbiology and Department of Biotechnology and Bioinformatics.

WASTE MANAGEMENT POLICY

1, Scope

This document provides information on the procedure being followed on waste management in the Deemed to be University

Applies to

All the teaching and non-teaching faculties, contractors and housekeeping staff

2. Preamble

Definitions

"**Authorization**" means permission granted by the Deemed to be University for the generation, collection, reception, storage, transportation, treatment, processing, disposal or any other form of handling of bio-medical waste in accordance with the rules and guidelines issued by the Central Pollution Control Board, Govt of India.

"**Authorized person**" means a person authorized by the Deemed to be University to generate, collect, receive, store, transport, treat, process, dispose or handle bio-medical waste in accordance with the rules and guidelines issued by the Central Pollution Control Board, Govt of India

"**Biological**" means any preparation made from organisms or micro-organisms or product of metabolism and biochemical reactions intended for use in the diagnosis, immunization or the treatment of human beings or animals or in research activities

"**Bio-medical waste**" means the wastes generated during the diagnosis, treatment or immunization of human beings or animals or research activities

"**Bio-Medical Waste Treatment and Disposal Facility**" means the facility wherein treatment, disposal of bio-medical waste or processes incidental to such treatment and disposal is carried out, and includes common bio-medical waste treatment facilities

“Handling” in relation to bio-medical waste includes the generation, sorting, segregation, collection, packaging, storage, loading, transportation, unloading, treatment, destruction, transfer, disposal of waste.

“Healthcare facility” means a place where diagnosis, treatment or immunization of human beings is provided irrespective of type and size of health treatment system, and research activity

“Occupier” means a person having day to day administrative control over the clinic / lab generating bio-medical waste, which includes a hospital, mortuary, anatomical wastes, pathological laboratory, animal house, blood bank, irrespective of their system of medicine

“Operator of a common bio-medical waste treatment facility” means a person who owns or controls a Common Bio-medical Waste Treatment Facility (CBWTF) for the collection, reception, storage, transport, treatment, disposal or any other form of handling of bio-medical waste.

“Prescribed authority” mean the State Pollution Control Board in respect of State and Pollution Control Committee in respect of Union Territory. In Karnataka it is Karnataka State Pollution Control Board (KSPCB)

“Point of Generation” means the location where wastes initially generate and accumulate.

“Storage” means the holding of biomedical waste for a temporary period at the end of which the bio-medical waste is treated or disposed.

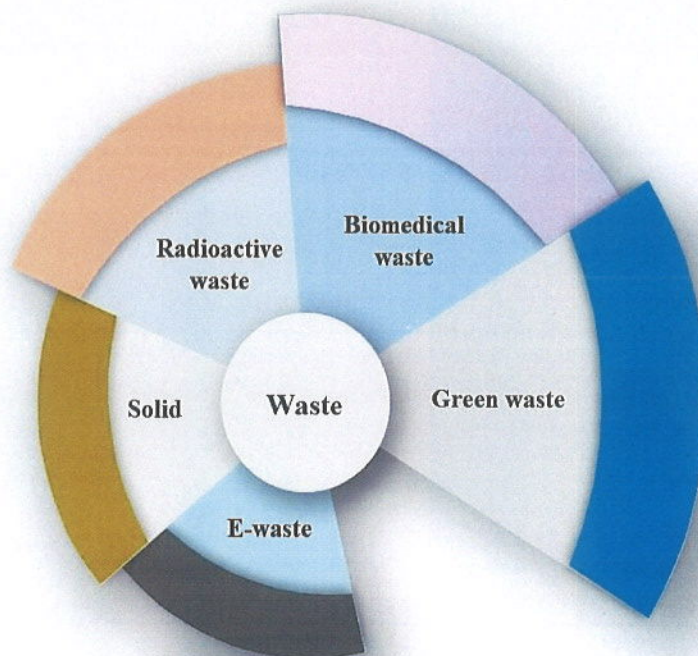
“Treatment” means any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological characteristics or composition of any hazardous waste

“Waste” any substance which is discarded after the primary use, or it is worthless, defective, and of no use

Policy

Classification of waste generated from the University, hospital and laboratories:

- **General solid wastes:** Domestic garbage, food and food packing materials, papers and cardboards, construction and demolition debris, sanitation residues, packaging materials, usually disposed through municipality
- **Bio-medical wastes:** Solid or liquid wastes including containers, intermediate or end products generated during diagnosis, treatment & research activities of medical sciences.
- **Green waste:** Wastes generated from gardens and herbal gardens activities. These substances are mostly biodegradable.
- **Radioactive wastes:** Waste containing radioactive materials. Usually these are byproducts of nuclear processes. e.g. radio-isotopes, chemical sludge etc.
- **E-wastes:** Electronic wastes generated from electrical or electronic devices. Electronic scrap components, such as CRTs, may contain contaminants such as Pb, Cd, Be or brominated flame retardants.



3. Procedure

General Wastes

It constitutes all the waste other than bio-medical wastes and which has not been in contact with any hazardous or infectious, chemical or biological secretions and does not includes any waste sharps. This waste consists of mainly:

- 1) Newspaper, paper and card boxes (dry waste)
- 2) Plastic water bottles (dry waste)
- 3) Aluminum cans of soft drinks (dry waste)
- 4) Packaging materials (dry waste)
- 5) Food Containers after emptying residual food (dry waste)
- 6) Organic / Bio-degradable waste - mostly food waste (wet waste)
- 7) Construction and Demolition wastes

These general wastes are further classified as dry wastes and wet wastes and should are collected separately. The quantity of such waste is around 80 % to 90 % of total waste generated from the University, hospital and laboratories.

Food wastes

Food wastes from the hostels are collected in closed containers in respective collection area and are taken to piggery to feed the pigs. Food waste is disposal ensured through third party contract. Pilot trials under process to convert food waste in to organic manure and biogas

Green waste

The dried / wet plants materials such as leaves, stem, trunk, roots, flowers etc collected or cut or shred from the garden. Approximately 20 tonnes per year green waste is generated from the campus. The collected materials are processed in pits and approximately 12 tonnes of manure are prepared from the green wastes which are used for gardening purpose spread over in different locations of the campus.

Construction and Demolition waste

As part of infrastructure development in the Deemed to be University, as and when renovation or new construction are planned, the solid debris generated are cleared from the campus through the contractors taking-up the construction work. These wastes are disposed through trucks and used as landfill (approximately 5 acre) at Belavatha site located 1 km from the main campus

E-waste


Electronic wastes – computers, televisions, circuit boards, hard disks, printers and copiers, used batteries, which are not covered under biomedical wastes are disposed as and when such wastes are generated as per the provisions laid down under E-Waste (Management) Rules, 2016, Batteries (Management & Handling) Rules, 2001, and Rules/guidelines under Atomic Energy Act, 1962 respectively. This is outsourced through third part contract.

Radioactive isotopes

Dept of Radiology, JSS Dental College and Hospital, is practising a safe way of radiology waste disposal as required by the Bhabha Atomic Research Centre (BARC), Govt of India, since decades. Following are the radiology wastes generated at JSSDC & H

1. Fixing Solution.
2. Lead foils.
3. Radiographs (X- Ray Hard copies).
4. Developer Solution.

Depleted Fixing solution is given to a private agency party (Amaron, Pit stop) to recycles and extract silver from it. The same is followed in the case of x-ray films once, which were collected for so many years excluding the last 10 years record. Lead foils are collected over a period of time and are given to battery manufacturers for recycling. Depleted Developing solution is with excessive water and disposed in drains as suggested by BARC.


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Bio-Medical Waste Management

"Bio-medical waste" means waste that are generated during diagnosis, treatment or immunization of human beings or animals or research activities or in the production or testing of biologicals. Medical waste includes all the waste generated from the Health Care Facility which can have adverse effects on the human health or to the environment in general if not disposed properly. In general, the quantity of biomedical waste will be 5% to 10% of total waste generated from the campus, hospitals and laboratories. These wastes consist of the materials originated patient or animals blood, secretions, infected parts, biological liquids such as chemicals, medical supplies, medicines, lab discharge, sharps metallic and glassware, plastics etc.

Bio Medical Waste Management Rules, 2016 categorizes the bio-medical waste generated from the health care facility into four major categories based on the segregation pathway and colour code:

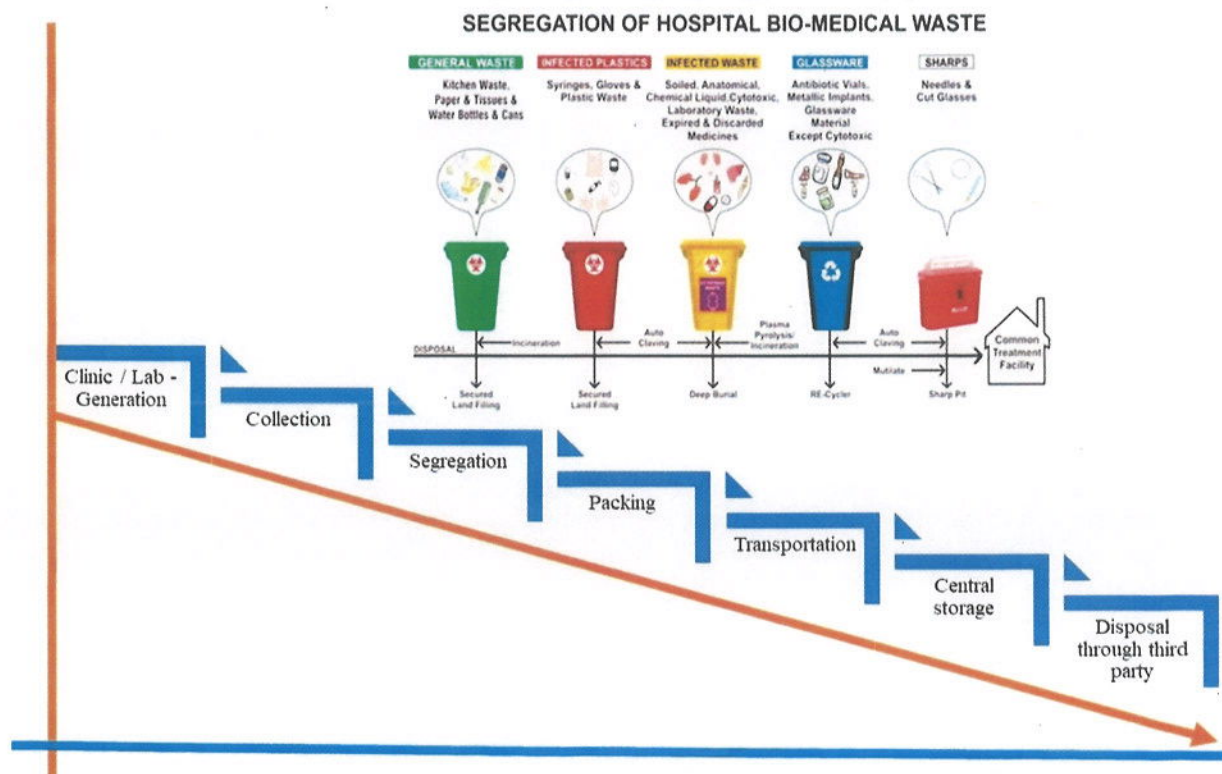
1. **Yellow Category**
2. **Red Category**
3. **White Category**
4. **Blue Category**
5. **Black Category**

S.No	Category	Type of waste	Color & Type of container
1	YELLOW	<ul style="list-style-type: none"> ➤ Human Anatomical Waste ➤ Animal Anatomical Waste ➤ Soiled Waste ➤ Discarded or Expired Medicine ➤ Microbiology, Biotechnology and other clinical laboratory waste ➤ Chemical Waste ➤ Chemical Liquid Waste 	<p>Yellow colored Non-Chlorinated Plastic Bags (having thickness equal to more than 50 μ) or containers</p>  <p>Note (i) Infected secretions, aspirated body fluids etc from laboratory are disinfected before mixing with another wastewater (ii) Liquid chemical wastes are pre-treated/ neutralised before mixing with other wastewater from hospital.</p>
2	RED	<ul style="list-style-type: none"> ➤ Contaminated Waste (Recyclable) 	<p>Red Colored Non-Chlorinated Plastic Bags (having thickness equal to more)</p> 
3	WHITE	<ul style="list-style-type: none"> ➤ Waste Sharps including metals 	<p>White Colored translucent, punctureproof, leak proof, Temper Proof containers</p>
4	BLUE	<ul style="list-style-type: none"> ➤ Glassware ➤ Metallic Body Implants 	<p>Cardboard boxes with blue colored marking or blue colored puncture proof, temper proof containers</p>

BIOMEDICAL WASTE SEGREGATION

Biomedical waste generated from the hospital and laboratories are segregated at the point of generation as per the colour coding stipulated under Schedule I of BMWM Rules, 2016.

- Personnel Protective Equipment are provided to the bio-medical waste handling staff.
- Waste are segregated at the point of generation of source and not in later stages. “Point of Generation” means the location where wastes initially generate, accumulate and is under the control of doctor / nursing staff / lab etc. who is providing treatment to the patient / animals and in the process generating bio-medical waste.
- Posters / placards for bio-medical waste segregation are installed at the point of generation.
- Adequate numbers of colour coded bins / containers or bags are available at the point of generation of bio-medical waste.



BIO MEDICAL WASTE COLLECTION

Time of Collection

- Bio-medical waste should be collected on daily basis from each ward of the hospital / lab at a fixed time. There can be multiple collections during the day. All the biomedical waste should be collected, segregated, packed and sent to central biomedical waste storage every evening before 4.30 pm
- Clinics and labs should ensure collection, transportation, and disposal of bio-medical waste within 48 hours.
- Bio-medical waste bags and sharps containers should be filled to no more than three quarters full. Once this level is reached, the bags are tied or sealed with plastic tags.
- Replacement bags or containers are available at each waste-collection location so that full ones can immediately be replaced.
- All the bags and containers to be transported to CBWTF are labeled with following details:
 - Date of Generation
 - Type of waste category
 - Dept name
 - Contact Person Name and Phone Number

Interim Storage

Interim storage of biomedical waste is discouraged in the clinics / labs

- If waste is needed to be stored on interim basis in the departments it is stored in the dirty utility/sections.
- In absence of dirty utilities/ sections such BMW must be stored in designated place away
- No waste is in patient care area / working area and procedure areas

General waste should not be collected at the same time or in the same trolley in which bio-medical waste is collected.

Labeling

All the bags/ containers/ bins used for collection and storage of bio-medical waste, are labelled with the warning Symbol of Bio Hazard or Cytotoxic Hazard as the case may be as per the type of waste in accordance with the BMWM Rules, 2016.



Bio-Hazard Label



Cyto-Toxic label

In-house Transportation of Biomedical waste

Transportation Trolleys & Carts

In-house transportation of biomedical waste from site of waste generation/ interim storage to central waste collection, within the premises is done in closed trolleys/containers fitted with wheels for easy maneuverability. Such trolleys or carts are dedicated only for the purpose of biomedical waste transportation.



Waste Collection Cart



Waste Transport Trolley for a Particular category of waste

Route of transportation is planned in such a way that:






- Transportation does not occur through traffic and high-risk areas
- Supplies and waste are transported through separate routes
- Central waste collection area is accessed easily through the route adopted

Central waste collection area – for temporary storage

A central collection center situated within its premises for storage of bio-medical waste, till the waste is transported for treatment and disposal to CBMWTF. Center storage is manned and is under lock and key under the responsibility of a designated person. Central collection area has proper ventilation through the use of exhaust fan, hand wash area, weighing balance etc.

- Location of central waste collection facility is away from the public/visitors' access.
- The space allocated for collection is sufficient for the quantity of waste generated from premises
- Space is sufficient to store at least two days generation of waste
- Center has a concrete ramp for easy transportation of waste collection trolleys
- Flooring is of tiles with slope so as to easy the cleaning of the area
- Center has good ventilation through the use of exhaust fan and by use of wire meshes window
- Central storage station ensured for fire hazard like installation of fire extinguisher, smoke detector etc.
- Water supply is provided for cleaning and washing of this station containers. The drainage from the storage and washing area is routed to the effluent treatment plant (ETP).
- Sign boards indicating relevant details such as contact person and the telephone number is provided.
- It is ensured that no general waste is stored in the central waste collection area.
- Healthcare facilities need to maintain the record of waste generated and handed over to the authorized recycles.
- Centre is protected from stray animals in the academia and has installed cattle traps at main gate
- Pest control program is in place

Colour codes for Biomedical waste collection and Packing

	<ul style="list-style-type: none"> ▪ Human and animal anatomical wastes ▪ Soiled wastes, Discarded or expired medicines ▪ Chemical wastes, ▪ Blood and
	<ul style="list-style-type: none"> ▪ Contaminated waste (recyclable)
	<ul style="list-style-type: none"> ▪ Sharps including metals ▪ Needles ▪ Scalpels ▪ Blades
	<ul style="list-style-type: none"> ▪ Broken and contaminated glass including vials and ampoules ▪ Metallic body implants
	<ul style="list-style-type: none"> ▪ Food items ▪ Papers / paper plates, ▪ Water bottles, etc

References

- <https://kspcb.gov.in/aboute.html> (Bio-Medical Waste Management Rules, 2016)
- <https://kspcb.gov.in/aboute.html> (Construction & Demolition Waste Management Rules, 2016)
- <https://kspcb.gov.in/aboute.html> (E-waste Management Rules 2016)
- <https://kspcb.gov.in/aboute.html> (Solid Waste Management Rules, 2016)
- <http://www.barc.gov.in/randd/rwm.html> (Bhabha Atomic Research Centre)

4. Authority


The Vice-Chancellor, Registrar & Deputy Registrar of JSS Academy of Higher Education & Research and Principals of the constituent colleges and Heads of the departments holds delegated authority and is responsible for all aspects of this policy.

5. Date of implementation:

This policy will come into immediate effect from 01.01.2022

6. Date of revision:

01.01.2024



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