

**DEPARTMENT OF MECHANICAL ENGINEERING  
RV INSTITUTE OF TECHNOLOGY AND MANAGEMENT  
BENGALURU - 560 076**

**Industry Visit report of  
“Organic Farming and Waste Management”**

The Department of Mechanical Engineering, RV Institute of Technology and Management, Bengaluru, organized industry visit on “Organic Farming and Waste Management” scheduled on 22<sup>nd</sup> – 23<sup>rd</sup> February 2023 from 10:30 AM to 03:00 PM at **Bio Technology Centre, Bannerghata Main Rd, Hulimavu, Bengaluru, Karnataka 560076** for third semester Students of RVITM.

**Contact Details :**

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**Details of the organizing team:**

**Coordinator-1: Dr. Muralidhar Singh M**, Assistant Professor, Dept of ME, RVITM  
**Coordinator-2: Dr. Manish Kumar**, Assistant Professor, Dept of ME, RVITM  
**Coordinator-3: Prof. Shruthi P**, Assistant Professor, Dept of ISE, RVITM

**Details of the Industry Visit:**

The industry visit on Organic Farming and Waste Management is successfully completed as per schedule. Around 180 students from the III semester 2022-23 batch have visited to Bio Technology Centre. The visit was on awareness of benefits of organic farming and importance of waste management. The schedule of industry visit was as follows:

<b>Timing</b>	<b>Description</b>
10:30 AM to 11:00 AM	Introduction to waste management and how to make Bio enzymes and preparing compost using kitchen waste.  Awareness about various fruits, flowers, hybrids, woods, oils, species, mushrooms, and deadly poisonous plants.
11:00 PM to 03:00 PM	Field visit: 1. Autoclave green house 2. Different greenhouse facility

	<ol style="list-style-type: none"> <li>3. Banana Plantation</li> <li>4. Nursery for Medicinal Plants.</li> <li>5. Demonstration of potting and repotting of plants.</li> <li>6. Preparation of vermicompost.</li> <li>7. Details about different organic fertilizer</li> </ol>
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## **Organic Waste Management**

Composting is a managed process which utilizes microorganisms naturally present in organic matter and soil to decompose organic material. These microorganisms require essential nutrients, oxygen, and water for decomposition to occur at an accelerated pace. The end product, compost, is a dark brown, humus-like material which can be easily and safely handled, stored, and used as a valuable soil conditioner. The composting process depends upon several factors, including the population of microorganisms, carbon-to-nitrogen ratio, oxygen level, temperature, moisture, surface area, pH, and time.

### **Aerobic Composting**

The composting process involves microorganisms feeding on organic material and consuming oxygen. The process generates heat, drives off moisture, and reduces bulky organic waste into a beneficial soil-like material containing nutrients, humus and microorganisms in just a few months. Material in an unmanaged pile of organic debris will eventually break down. Still, the process will take a long time and may result in odour or other nuisance problems due to poor aeration.

### **What to Compost**

Most organic waste materials generated by a greenhouse can be composted. Extensive material must be shredded before it is added to a carefully-constructed compost pile. Some materials may begin to decompose in a storage pile. Still, full composting will not occur until the material is mixed and managed in the correct proportions of carbon to nitrogen (C: N ratio) with adequate airflow and moisture.

Composting is an excellent method of recycling grass clippings. However, do not compost grass clippings or any other plant residues that have been treated with herbicides. If carried out properly, it can reduce the potential weed seeds and diseases from being reintroduced into the fields. The finished compost is a stable organic material which is a valuable soil conditioner or

nutrient source. Due to the characteristics of fresh grass clippings (high moisture, high-nitrogen content and small particle size), co-composting with a high-carbon bulking agent is essential.

**Unacceptable materials for composting:** Chemically treated wood products, plastic (e.g. pots, bags and sheet film), unprocessed sod and chunks of soil, large bulky items (e.g. stumps, pallets, concrete and asphalt)

**Acceptable Materials for composting:** Green and woody plant clippings and trimmings, soil, plant media, untreated wood and uncoated paper scraps

## **The Basic Composting Process**

The general steps in the biological process which creates compost are the same regardless of the raw materials being composted or the size and complexity of the production facility. A compost must pass through all of the steps outlined here for it to be considered high enough quality for organic potting mixes.

The progress of organic matter decomposition during composting can be followed by monitoring the compost pile's temperature. During the initial phase of composting, the pile's temperature increases rapidly as the population and activity of decay microorganisms increase in response to the readily decomposable carbon in the raw materials. The goals are to reach a temperature between 131°F and more and to maintain this temperature range until the microorganisms begin to exhaust the readily available carbon. During composting, the pile is turned and remixed several times to ensure complete heating and decomposition.

Compost piles must maintain 131-170°F for at least 3 days (static pile) or 15 days (windrow, turned at least 5 times) to comply with the National Organic Program standards. High temperatures are necessary to kill human pathogens, especially if farm manure is a component. Also, weed seeds and plant diseases are most successfully killed at high temperatures. Most weed seeds are destroyed at 145°F. Following the high-temperature phase, there is an extended period of gradual temperature decline until the pile reaches ambient air temperature. Now, if the pile is turned, reheating will not occur. At this point, the compost is said to be "near maturity", but to ensure that the compost is stable and ready to use, most producers allow some extra time for the compost to "cure". How long composting lasts varies with the method. It could take about

1-2 years in a static unturned pile, 6-9 months if the pile is turned occasionally, or only 1-4 months if it is turned frequently.

**Photos of the One-day training program:**



**Industrial Visit Photos**

