

# 21ELCT305 AGRICULTURAL WASTE MANAGEMENT

Hours Per Week :

L	T	P	C
2	-	2	3

Total Hours :

L	T	P
30	-	30

## COURSE DESCRIPTION AND OBJECTIVES:

To impart knowledge on various methods of agricultural waste management for eco-friendly energy and manure production

## COURSE OUTCOMES:

Upon completion of the course, the student will be able to achieve the following outcomes:

COs	Course Outcomes
1	Various eco-friendly methods for agricultural waste management
2	Nutritive value and energy production potential of agro wastes

## SKILLS:

- ✓ *Prepare plans for Agricultural Waste Management*
- ✓ *Handling of Vermicomposting unit and Biogas plant*



Source:

<https://images.app.goo.gl/xMzaWd2zXpVbwKkQA>

**ACTIVITIES:**

- o Visit Agricultural Waste processing unit
- o Practice various activities in vermin compost unit and biogas plant

**UNIT - 1**

**Introduction:** Introduction to agricultural waste management, Nature and characteristics of agricultural waste and their impact on the environment

**UNIT - 2**

**Waste Characteristics:** Kinds of wastes, Classification, role of soil and plants in waste management, sources of waste, impact of waste on soil and plant quality

**UNIT - 3**

**Waste Management:** Biological processes of waste management, Utilization and Recycling of Agricultural waste, Potential of Recyclable Crop Residues and its management, Insitu management of agriculture waste

**UNIT - 4**

**Composting and Bio Gas Technology:** Composting and Vermicomposting for bio conservation of biodegradable waste, Biogas Technology, Agricultural waste and water, air and animal resources, Impacts of waste on human, animal health and environment

**UNIT - 5**

**Machineries:** Management of bedding & litter, wasted feed, run-off from feed lots and holding areas and waste water from dairy parlors, agro-waste recycling through farming system, waste management machineries, environmental benefit of waste management

**LABORATORY EXPERIMENTS****LIST OF EXPERIMENTS**

1. Collection and preparation of agricultural waste sample
2. Determination of pH, EC, CEC
3. Determination of heavy metals
4. Determination of BOD, COD, TSS
5. Determination of TDS, NH<sub>4</sub>
6. Determination of total P and dissolved reactive P
7. Analysis of nutrient status of N of agricultural waste
8. Analysis of nutrient status of P and K of agricultural waste
9. Analysis of nutrient status of secondary nutrients of agricultural waste
10. Analysis of nutrient status of micronutrients of agricultural waste
11. Waste management equipment operation
12. Maintenance and safety hazards, computer software and models
13. Survey of different agri-wastes from livestock, dairy and poultry
14. Survey of different agri-wastes from food processing, fruit and vegetable and agrichemicals
15. Preparation of compost, vermi composting and biogas, analysis of compost

**REFERENCES:**

1. Fundamentals of Soil Science, Second edition 2009, Indian Society of Soil Science, New Delhi
2. Tandon, H.L.S. (ed.). 2009. Recycling of crop, animal, human and industrial wastes. Fertilizer Development and Consultation organisation, New Delhi
3. Tandon, H.L.S. (ed.). 2009. Soil health management. Fertilizer Development and Consultation organisation, New Delhi
4. Raymond C Loehr. 1974. Agricultural waste management: problems, processes and approaches. Academic Press