**Subject Code : P8ZOE3**

## ELECTIVE III - VERMITECHNOLOGY

### UNIT I

Earthworms and their environment, diversity, distribution and biology.

The nature of earthworms- soil environment – basic environmental requirements.
Food and digestive capabilities, respiratory requirements and adaptation.
Systematic affinities and evolutionary descent.
Families, genera and species.
Geographical distribution.
Life style, behaviour patterns, water relationships, regeneration and transpiration.

### UNIT 2

Role of earthworms in soil structure, fertility and productivity
Earthworms burrows and casts.
Effect earthworms in soil structure – carbon, nitrogen and phosphorous Transformations.
Earthworms as bio-indicators of soil types.
Effect of earthworms on plant productivity.
Earthworms in land amelioration and reclamation.
Earthworms as indicators of environmental contamination.

### UNIT 3

Earthworms in organic waste management.

Management of sewage sludge by earthworms.
Management of animal, vegetable and industrial organic waste by earthworms.
Earthworm composts as plant growth media and its marketing.
The use of earthworm as food protein source for animals
Engineering of waste management.
Role of earthworms in processing organic wastes applied to agricultural and Other land

### UNIT 4

Effects of agricultural practices and chemicals on earthworms.

The effects of cultivation.
The effects of cropping.
The effects of fertilizers.
The effects of chemicals.
The effects of radioisotopes.

Heavy metals and acid deposition and earthworms.

**UNIT 5**

Earthworms and microorganisms and field sampling methods.

The effects of earthworms on the number, biomass and activity of microorganisms.
Importance of microorganisms as food for earthworms.
Dispersal of microorganisms y earthworms.
Role of intestinal microbes of earthworms on the decomposition of organic wastes.
Field sampling – Passive methods, behavioural methods and Mark recapture methods.
Counting of mass and biomass estimation.

**References:**


1. Edwards, C.A & P.J Bohlen, 1996. Biology and ecology of earthworms III Edn. Chapman & Hall N.Y.U.S.A.
2. Edwards, C.A & J.R Lofty Vermicoloogy – The Biology of earthworm, 1997 Chapman & Hall Publications N.Y.U.S.A.
3. Lee, K.E. 1985. Earthworms their ecology and relationships