

Course Code	Course Name	Credits
26ZY005	BASIC ENTOMOLOGY	04

### Course Objectives

- To provide knowledge on the structure and organization of the insect body.
- To understand the morphology and modifications of insect appendages and body regions.
- To explain the process of moulting, metamorphosis, and insect development.
- To study the structure and functions of insect sense organs and mouthparts.
- To develop an understanding of insect adaptations related to feeding, locomotion, and survival.

### Learning Outcomes

- Describe the structure and functions of the insect integument and body segmentation.
- Identify and explain the modifications of insect head, antennae, thorax, legs, wings, and abdomen.
- Understand the mechanisms of moulting, metamorphosis, and insect development.
- Differentiate various types of insect mouthparts and their feeding mechanisms.
- Explain the role of insect sensory organs and adaptations in different ecological conditions.

### Unit 1 – Insect Integument (12 Hrs.)

Insect body wall structure, cuticular outgrowths, colouration and special integumentary structures in insects, body tagmata, sclerites and segmentation, Process of moulting.

### Unit 2 – Structure and modifications of Head and Antennae (12 Hrs.)

Head- Origin, structure and modification; types of mouthparts and antennae, tentorium and neck sclerites. Components of typical antenna, basal articulation, functions and modifications (with examples)

### Unit 3 - Structure and modifications of thorax (12 Hrs.)

Thorax- Areas and sutures of tergum, sternum and pleuron, pterothorax; Wings: structure and modifications, wing coupling apparatus and mechanism of flight; Legs: structure, Components of typical leg, basal articulation, tripod locomotion and modifications.

### Unit 4 – Structure and modifications of Abdomen (12 Hrs.)

Abdomen- Segmentation and appendages; Genitalia and their modifications; Embryonic and post-embryonic development; Types of metamorphosis. Insect sense organs (mechano-, photo- and chemoreceptors).

### Unit 5 - Structure and modifications of mouth parts (12 Hrs.)

Structure and feeding mechanism of Mandibulate type of mouthparts and Haustellate type of mouth parts (piercing and sucking; chewing & lapping; sponging; rasping & sucking and siphoning).

### Reference Books:

1. Chapman RF. 1998. The Insects: Structure and Function. Cambridge Univ. Press, Cambridge.
2. David BV & Ananthkrishnan TN. 2004. General and Applied Entomology. Tata-McGraw Hill, New Delhi.
3. Duntson PA. 2004. The Insects: Structure, Function and Biodiversity. Kalyani Publ., New Delhi.
4. Evans JW. 2004. Outlines of Agricultural Entomology. Asiatic Publ., New Delhi.
5. Saxena RC & Srivastava RC. 2007. Entomology: At a Glance. Agrotech Publ. Academy, Jodhpur.

### Websites and eLearning Sources:

<https://entnemdept.ufl.edu/creatures/>  
<https://www.biologydiscussion.com/entomology>  
<https://www.easybiologyclass.com/category/entomology/>