DISCIPLINE SPECIFIC ELECTIVES (DSE-12): Biology of Insecta
Zoo-DSE-12

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course	Department offering the course
		Lecture	Tutorial	Practical			
Biology of Insecta Zoo-DSE-12	04	03	Nil	01	Passed Class XII with Biology/ Biotechnology	NIL	Zoology

Learning Objectives

The learning objectives of this course are as follows:

- to acquaint the students about biology of class Insecta.
- to acquire knowledge of the morphology and physiology of Insects.
- to enable the students to see, appreciate and understand the diversity of insects.

Learning Outcomes

By studying this course, students will be able to:

- better appreciate the diversity of insects.
- better understand the physiology of Insects which has made them the most successful animalsin terms of numbers and variety of species.
- get acquainted with the highly organized social life of insects.
- to make the students aware about the possible scope of the subject which includes research and applied aspects including entrepreneurial skill.

SYLLABUS OF DSE- 12

UNIT-1 Introduction **4 hrs**

General features of Insects and their diversity; Classification of insects up to orders.

UNIT- 2: General Morphology of Insects **12 hrs**

Head: Eyes, Types of antennae, Mouth parts w.r.t. feeding habits; Thorax: wings-Typical structure of insect wing and its modifications, Types of Legs; Abdomen: Typical structure.

UNIT- 3: Physiology of Insects **18 hrs**

General aspects of the Integumentary (structure of integument and process of moulting), digestive, excretory, circulatory, respiratory, reproductive, and nervous system (using cockroach as the type representative); Metamorphosis: Types & hormonal control

UNIT- 4: Insect behaviour **6 hrs**

Insect-Plant Interactions: Host-plant selection by phytophagous insects.

UNIT- 5: Insects as plant pests **5 hrs**

Bionomics and control of any two phytophagous insect pests of fruits, vegetables, cash crops and stored grains.

Practical **(30 hrs)**

(Laboratory periods: 15 classes of 2 hours each)

1. Methodology of collection, preservation and taxonomic identification of insects (classification up to order with the help of taxonomic keys).
2. Study of different kinds of antennae, legs and mouth parts of insects with the help of slides/specimens/ photographs
3. Study of morphological features of insects using pictures/slides/museum specimen (cockroach): head, sclerites, antennae, mouthparts, wing venation, and legs.
4. Preparation of temporary/permanent mount of any stored grain pest and its life stages.
5. Study of biology of any insect pest of agricultural crops (Fruit/vegetable).
6. Field study of insects and submission of a project report showcasing insect diversity.

Essential/recommended readings

1. Chapman, R. F. (1998) The Insects: Structure and Function. Cambridge University Press, UK.
2. Richards, O. W., Davies, R. G. (1977) Imms' General Text Book of Entomology. Vol I & Vol II; Chapman & Hall, UK.

Suggestive readings

1. Snodgrass, R. E. Principles of Insect Morphology. Cornell Univ. Press, USA.
2. Borror, D. J., Triplehorn, C. A., and Johnson, N. F. Introduction to the Study of Insects. M Saunders College Publication, USA.

NOTE: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.