



6th Semester

Branch	Subject Title	Subject Code
B.Sc. (Zoology) DSE - 2	Insect Taxonomy and Applied Entomology	ZODSE2-161

Course Objectives - To sensitize the students on the theory and practice of classifying organisms (with special reference to animals) and the rules governing the same. To introduce the students to the classification of insects up to the level of families with hands-on experience in identifying the families of insects. This course provides a foundation in applied entomology covering topics including insect morphology, insect behavior, reproduction and biology, insect classification, insect collection and preservation, natural enemies, and host plants. Emphasis is placed on the application of entomology in agriculture, apiculture, forestry, and everyday life.

Course Learning outcomes (CLO) -

On completion of this course, learners will be able to-

1. Learn about the taxonomy, Morphology and Anatomy of Insect
2. Identify the importance of insect as Beneficial and Harmful Pests of different crops, forest, medical and veterinary field with their control measures.
3. Get Self Employment in the field of Silk, Honey and Lac Production
4. Identify the nutritive value of the insects.
5. Identify ecological services of insects and its

Unit - I

1. Introduction of Insect

1. History of Insect biology, Identifying characters and outline classification of class – Insecta upto orders.
 - a. Diagnostic features with example of Insect orders - Isoptera, Orthoptera, Hemiptera, Coleoptera, Hymenoptera, Lepidoptera, Diptera.
2. General Morphology of an insect (Periplaneta) Antennae, Mouth parts, Legs, Wings, Genitalia.
 1. General Anatomy of an insect (Periplaneta) -Digestive System, Excretory System, Nervous System and Reproductive system.
 2. Ecological services of Insect.
 3. Role of Insect in Agriculture (Direct & Indirect)

Unit - II

1. Beneficial Insects

1. Sericulture
 - 1.1 History of Sericulture, Systematic position, Silk producing moths (mulberry and non mulberry)
 - 1.2 Mulberry Silkworm-lifecycle of Bombyx mori
 - 1.3 Sericulture Industry and its management.
 - 1.4 Diseases and enemies of silkworm.
 - 1.5 Uses of Silk and Sericulture in India.

2. Apiculture

- 2.1 History of Apiculture, classification and species of Honeybee.



2.2 Social organization, division of labor and lifecycle of Honeybee.

2.3 Bee keeping methods and equipments.

2.4 Diseases and enemies of Honeybee.

2.5 Products, its uses and Apiculture in India.

3. Lac Culture

3.1 History of Lac culture, Systematic position, structure of lac insect.

3.2 Lifecycle of lac insect and host plants.

3.3 Varieties and crops of lac.

3.4 Cultivation of lac and enemies of lac insect.

3.5 Uses of lac and Lac industry in India.

4. Edible Insects - Locust, Termite, Grasshopper, Beetles, Caterpillars and Bees.

Unit – III

Important Insect pest of Crop and Forestry Classification, Lifecycle, Diseases and Control measures-

1. Crop pest

1.1 Sugarcane pest - Pyrillaperpusilla

1.2 Fruit pest - Amritodusalkensoni

1.3 Polyphagus pest-Schistocercagregaria

2 . Forest pest

2.1 Sal borer - Hoplocerambyxspinicornis

2.2 Bamboo borer - Dinoderusbrevis

2.3 Common forest beetle - Sinoxylonsps.

3. Insect and Plant interaction

Unit – IV

Pests of Medical and Veterinary Importance

1. Pests of Medical importance

1.1 Mode of transmission

1.2 Common vector insect-distribution, host, characters, lifecycle, diseases and their control.

a. Housefly - Muscadomestica

b. Mosquitoes - Culex, Anopheles and Aedes

1.3 Distinguished characters of Culex, Anopheles and Aedes.

2. Pests of Veterinary importance

2.1 Insect parasitism

2.2 Distribution, host, characters, lifecycle, host pest interaction, diseases and their control..

a. Horsefly - Tabanus spp.

b. Stable fly - Stomoxys spp.

c. Cattle blood sucking louse-Linognathus spp.

Unit – V

1. Insect pest control

1.1 Natural control

1.2 Artificial (applied/chemical) control

1.3 Biological control

1.4 Integrated pest management. (IPM)

1.5 Equipment for insecticidal application and their maintenance.

1.6 Safety precautions by insecticides



Practical's

1. Identification and Comments on common insects of different orders of Class-Insecta
2. Demonstration of Morphological parts of insect - Antennae, Mouth parts, Wings, Legs and Genitalia
3. Demonstration by Dissection - Internal system of Periplaneta (Cockroach)
4. Techniques –
 - a) Mounting of Morphological parts
 - b) To calculate the Total Haemocyte Count (THC)
 - c) To determine the Differential Haemocyte Count (DHC)
5. Study the Life cycle of Beneficial Insects -
 - a) Bombyx mori
 - b) Apis indica
 - c) Laccifer lacca
6. Identification, Characters and Control Measures of Crop and Forestry Important Pests
7. Identification, Characters, Diseases and Control Medical and Veterinary Important Pests
8. Study and Application of Collection and Insecticidal Equipments
9. Collection and Preservation Techniques of different Insects according to Orders
10. Physical/ Virtual Visit to Crop Field/Forest Site/ Insect Culture Site/Veterinary Institute and Submit a Visit Report to Supervisor



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