ST. JOSEPH’S COLLEGE FOR WOMEN (AUTONOMOUS) VISAKHAPATNAM

B.SC.(HONORS) AGRICULTURE AND RURAL DEVELOPMENT WITH SINGLE MAJOR

# II SEMESTER AGRICULTURE AND RURAL DEVELOPMENT Time: 15hrs/week

AGRD131 (1)  **FUNDAMENTALS OF ENTOMOLOGY** Marks:100

w.e.f AK 2023-2024 (Admitted batch) **SYLLABUS**

**OBJECTIVES:**

* To study of insects and their relationship to humans and environment
* To study about types of reproduction
* To study about insect taxonomy
* To study about Body segmentation. Structure of Head, thorax and abdomen.

**COURSE OUTCOMES:**

At the end of the course, students will be able to

**CO1:** Classify insecta and account for their abundance and dominance

**CO2:** Explainthe morphology and anatomy of insects.

**CO3:** Discuss the life cycle and endocrine systems of insects

**CO4:** Summarize the taxonomical features in various orders of insecta.

**UNIT – I: (3 Hrs.)**

1. History of Entomology in India. Factors for insect’s abundance. Major points related to dominance of Insecta in Animal kingdom. Classification of phylum Arthropoda upto classes.

2. Relationship of class Insecta with other classes of Arthropoda. Morphology: Structure and functions of insect cuticle and moulting.

**UNIT – II: (3 Hrs.)**

1. Body segmentation. Structure of Head, thorax and abdomen.

2. Structure and modifications of insect antennae, mouth parts, legs, wing venation, modifications and wing coupling apparatus.

 3. Structure of male and female genital organs. Metamorphosis and diapause in insects.

**UNIT – III: (3 Hrs.)**

1. Types of larvae and pupae. Structure and functions of digestive, circulatory, excretory, respiratory, nervous, secretory (Endocrine) and reproductive systems in insects.

2. Types of reproduction in insects. Major sensory organs like simple and compound eyes and chemoreceptors.

**UNIT – IV: (3 Hrs.)**

1. Systematics: Taxonomy–importance, history and development and binomial nomenclature. Definitions of Biotype, Sub-species, Species, Genus, Family and Order.

2. Classification of class Insecta upto orders. basic groups of present day insects with special emphasis to orders and families of agricultural importance like Arthoptera: Acrididae, Tettigonidae, Gryllidae, Gryllotalpidae;

AGRD131 (1) ::2::

**UNIT – V: (3 Hrs.)**

1. Dictyoptera: Mantidae, Blattidae; Odonata; Isoptera: Termitidae; Thysanoptera: thripidae; Hemiptera: Pentatomidae, Coreidae, Cimicidae, Pyrrhocoridae, Lygaeidae, Miridae, Cicadellidae, Delphacidae, Aphididae, Coccidae, Lophophidae, Aleurodidae, Pseudococcidae; Neuroptera: Chrysopidae; Lepidoptera:

 2. Pieridae, Papiloinidae, Noctuidae, Sphingidae, Pyralidae, Gelechiidae, Arctiidae, Lymantridae, Saturniidae, Bombycidae;

3. Coleoptera: Coccinellidae, Chrysomelidae, Cerambycidae, Curculionidae, Apionidae, Bruchidae, Scarabaeidae;

**REFERENCES TEXT BOOKS:**

1. Chapman, R. F 2013 Insects: Structure and Function. Ed by Simpson, S. J. and Douglas, A. C. Cambridge Univ. Press, UK.

2. Richards, O.W. and Davies, R.G 1977. Imm’s General Text Book of Entomology (Vol. I and II). Chapman and Hall, London.

3. Wigglesworth, V.B 2013. Insect Physiology. Springer (Originally published by Chapman and Hall, London, 1974).

4. Pant, N.C. and Ghai, S. 198. Insect Physiology and Anatomy. ICAR, New Delhi.

\*\* \*\* \*\*