



जम्मू केन्द्रीय विश्वविद्यालय
Central University of Jammu

राया-सुचानी (बगला), जिला: सांबा-181143, जम्मू (जम्मू और कश्मीर), भारत
Rahya-Suchani (Bagla), District- Samba, 181143, Jammu (Jammu and Kashmir), India

Course Title: Entomology

Credit: 4 (L-4, T-0, P-0)

Course code:

Contact Hrs/Week: 4 Hrs

Course Outcomes

The student should understand the importance of class insect with respect to nature and its significance in industry and agriculture. Upon the completion of the course, the student should be able to understand the role of physiology and co-ordination of different insect orders and their interaction with different ecosystems.

Course Learning Outcomes (CLO): The students will be able to:

1. To decipher the insect taxonomic techniques
2. To understand the biology and physiology of class insecta.
3. To elucidate the role of chemical pesticides and their mode of action on insects
4. To understand the significance and application of their bye-products.
5. To evaluate the role of insects in industry and medicine.

Unit I

Insect morphology, Insect taxonomy up to order-insect, Collection-preservation-identification-insect head-thorax and abdomen-types of antennae-mouth parts and their modification-the integument.

Unit II

Anatomy and physiology-Physiology of digestion, Respiration of terrestrial, aquatic and endoparasites insects, Circulation-component of blood-fat body and mechanism of circulation-excretion-types, Organs of excretion-the accessory organs of excretion and physiology of excretion and physiology of excretion-reproductive system of male and female insects.

Unit III

Applied Entomology, Classification of insecticides and their application for pest control, Classification based on mode of action and mode of entry, Formulation for dry application and wet application of pesticides, Pest of paddy, cotton, sugarcane, coconut and stored products, biological control measures-integrated pest management concept.

Unit IV

Apiculture-Types of honey bees, Structural adaptations in honey bees (mandibular glands, Lateral pharyngeal glands, legs, wax glands and sting gland), Bee colony, foraging of bees, behavior of bees, social life in honey bees, Bee Keeping, types of bee hives and other accessories care and management on Apirary, Uses of honey-enemies and diseases of honey bees.



Unit V

Sericulture-Silk worm, Silk and mulberry silkworm (*Bombyx mori*), Biology of silkworm, Cultivation of mulberry plants-rearing silkworm, Silk production, reeling, Composition and uses of silk Diseases and enemies of silkworms.

Suggested Readings:

1. Atwal (1986). Agricultural pests of India and south east Asia, Kalyani Publishers.
2. Chapman (1998). The Insects: structure and function 4th Ed. ELBS.
3. Imms (1977). A general text book of entomology 2 vols. Asia Publishing House
4. Klowden (2002). Physiological systems in Insects, Academic Press.
5. McGavin (2001). Essential Entomology, Oxford Univ. Press, New Delhi
6. Srivastava (1993). A text book of applied entomology Vol I & II Kalyani Publishers, New Delhi.
7. Wigglesworth (1972). Principles of Insect Physiology, ELBS.

Course Title: Entomology Lab.

Credit: 2 (L-0, T-0, P-4)

Course code:

Contact Hrs/Week: 4 Hrs

Lab component

1. To identify the insects with the help of prepared dichotomous keys.
2. Mounting of Mouth parts, salivary glands, legs, sting of honey bees.
3. Virtual dissection of reproductive system (Cockroach, Grasshopper, Spodoptera, Apis).
4. Virtual dissection of digestive system (Cockroach, Grasshopper, Spodoptera, Apis).
5. Virtual dissection of nervous system (Cockroach, Grasshopper, Spodoptera, Apis).
6. To study lifecycle of Lac Insect, Honey bee & silk worm.
7. Identification of silkworm (egg, larva, pupae and adults).
8. To study life cycle of two stored grain pests and two vegetable/fruit pests.