DISCIPLINE SPECIFIC ELECTIVE COURSE –DSE-3 :

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Applied entomology (BS-DSE-3)	**4**	**2**	**0**	**2**	Class XII pass with Biology and chemistry, as one of the papers in Class XII	**NA**

Learning Objectives:

The study of Applied Entomology provides an insight about the role of insects as powerful competitors of man as they cause enormous injury to crops and animals and also act as vectors of many diseases. This course will help the students to understand the concept of insect pests and their population dynamics in relation to changing environmental conditions as well as the role of economically important insects in tremendous commercial benefits to humans. The students will learn about various types of pests, their distinguishing features, life cycle, damage to crops and human health by them. This will be of help in choosing the appropriate control measures to manage the pest population in nature and to avoid heavy economic losses.

Learning Outcomes:

Upon completion of the course, students will be able to:

- Learn about the concept of pest and pest status.
- Understand the difference between various types of pests and Crop losses and extent of damage caused by them.
- Gain knowledge about economically important insects; important pests of crops, fruits, vegetables, stored grains and also about medically important insects.
- Analysis of varied types of control measures for management of pest populations and list suitable control measures- specific for every pest.

Course Contents- Theory

Unit 1: Pests and Economically important Insects (05 Hours)

Introduction, Factors responsible for emergence of pest, Pest status, Pest population dynamics. Economically important Insects; Honey Bee and Silkworm

Unit 2: Bionomics and Control of Crop pests (07 Hours)

Rice pest (*Leptocorisa acuta*); Wheat pest (*Sesamia inferens*); Pulse pest (*Helicoverpa armigera*); Cotton pests (*Pectinophora gossypiella*); Vegetable pest (*Raphidopalpa foveic*

Unit 3: Stored Grain Pests (6 Hours)

Bionomics and strategies for the management of stored grain pests; *Sitophilus oryzae*, *Corcyra cephalonica*, *Trogoderma granarium*, *Callosobruchus chinensis*.

Unit 4: Medically Important Pest (05 Hours)

Bionomics and Management of the Medically Important pests; Fleas, Mosquitoes, Housefly.

Unit 5: Pest Management Tactics (7 Hours)

Methods of Physical, Mechanical, Cultural, Biological, Genetic control of insects; Chemical controls. Integrated Pest Management (IPM).

PRACTICAL (Total Hours 60)

1. Identification of Agricultural Pests and Damage caused by them: *Leptocorisa acuta, Sesamia inferens, Helicoverpa armigera, Raphidopalpa foveicollis*.
2. Identification of Stored Grain Pests and Damage caused by them: *Sitophilus oryzae, Corcyra cephalonica, Trogoderma granarium, Callosobruchus chinensis.*
3. Study of the Morphological Features of Rat flea, Mosquitoes, Housefly and their Medical Importance.
4. Determination of LD50 or LC50 of Insecticides based on the data provided.
5. Instruments used in chemical control of pests.
6. Project report on any one economically important insect/ rearing of a pest.
7. Field Trips to Entomological Institutes/Museums/Laboratories

3.3 Essential Readings:

1. Atwal, A.S. (1993) Agricultural Pests of India and South East Asia. Kalyani Publishers, New Delhi.
2. Dennis, S. Hill (2005) Agricultural Insect Pests of the Tropics and Their Management, Cambridge University press. Suggested Readings:
3. S. Pradhan. Insect Pest of Crops. National Book Trust, New Delhi.

Suggested Readings:

1. Pedigo, L.P. (1996) Entomology and Pest Management. Prentice Hall, New Delhi.

Online Tools and Web Resources:

- https://swayam.gov/appliedentomology
- http://mesamalaria.org/updates/mooc-medical-entomology-organized-institut-pasteur
- https://www.pasteur.fr/en/mooc-medical-entomology-insect-vectors-andtransmission-pathogens
- https://www.entsoc.org/resources/education/online-courses

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