Appendix-29
Resolution No. 24-10

Bachelor of Science (Prog.) in Applied Life Sciences

Agrochemicals and Pest Management

SEMESTER-VII

ZOOLOGY

DISCIPLINE SPECIFIC CORE COURSE: **ALS-ZOO DSC 07**

INSECT BEHAVIOUR

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 (if any)
		Lecture	Tutorial	Practicals/ Practice		
Insect Behaviour ALS ZOO DSC 07	4	2	Nil	2	Appeared in Sem-VI	NA

Learning Objectives:

- This syllabus provides a comprehensive overview of insect behavior, its underlying mechanisms, and its relevance to various fields.
- Insect behaviour is a scientific study of the behaviour of insects in their natural habitat and in relation to their interactions with other living organisms and the environment.
- Study of orientation, feeding and oviposition behaviour of insects has immense applications in pest management in an effective, economical and eco-friendly manner.
- Behavioural studies can be conducted easily by the undergraduate students in the laboratory and can later be extrapolated in the investigative field projects.

Course Outcomes:

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

- Learn about the concept of insect behaviour and its applications
- Gain knowledge about importance of insect behaviour in natural habitat.
- Understand the complexities of insect behavior and its applications in the real world.
- Understand the difference between various types of pests and their host plants, extent of damage caused by them.

Theory **30h**

Unit 1: Introduction to insect behaviour **5 h**

Scope and importance of studying insect behavior. Types of behaviour: Innate, Learned, Fixed Action patterns (FAPs) and Complex behaviours (Altruism).

Unit 2: Mechanism of sensory perception and Orientation behaviour of insects **10 h**

Sensory perception in insects: mechanoreceptors, hygroreceptors, thermoreceptors, photoreceptors. Visual Communication, Acoustic communication, Tactile communication and Chemical communication, Neuronal and hormonal basis of Insect behaviour, Orientational responses: Kinesis and Taxis.

Unit 3: Feeding behavior of insects

Types of feeding habits with special emphasis on phytophagous insects, Insect-plant relationships, Foraging behaviour of Honey bees. **8 h**

Unit 4: Reproductive behavior

Locating mates, Courtship, Sexual differences in mating behavior, Mate selection and rejection, Genetic quality and mate choice, Aggregation signal, Sex pheromones. **7 h**

Practicals

(Laboratory periods 15 classes of 4 hrs each)

1. To study the various tools and techniques/methods used to study of the behaviour of insects in the laboratory and field conditions.
2. To observe the insects in the wild.
3. To distinguish between beneficial and destructive insects (pests).
4. To study the geotaxis behaviour of soil insects.
5. To study the phototaxis behaviour larvae of phytophagous insects.
6. To study the stridulation, swarming, habituation, courtship behaviour of insects (at least two videos for each behaviour).
7. Construction of ethogram by using suitable data to study insect behaviour.
8. Visit to forest, wildlife park, sanctuary, zoological park to study and record the behaviour of insects and prepare a short report.

Suggested Readings:

1. V.B. Awasthi. Principle of Insect Behaviour. Scientific Publication; 2nd Edition.
2. Mathews, W. Robert and Methews, R. Janice. Insect Behaviour. Springer, 2nd Edition.

3. Alcock, John. Animal Behaviour. Sinauer Associates. 11th Edition.

Additional Resources:

1. UGC INFONET / DU E-Resources & SciFinder Web Version registration
2. Viji, C. P., Phani Kumar, K. and Sudhavan Vani, V. Insect Ecology and Behaviour.

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