DISCIPLINE SPECIFIC ELECTIVE COURSE: **ALS ZOO DSE 10**

MEDICAL AND VETERINARY PESTS

Credits 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		
Medical and Veterinary pests **ALS ZOO DSE 10**	**4**	**2**	**Nil**	**2**	**Appeared in Sem-VII**	**NA**

Learning Objectives:

The learning objectives of this course are as follows:

- This course offers an insight about the various types of human diseases.
- This course offers an insight about the various types of Farm Animal diseases
- The students will understand the concepts of pathogens and pathological basis of diseases including infectious diseases caused by viruses, prokaryotes, protozoans, helminthes, vector-borne and zoonotic diseases.
- Vector biology, medical importance and management of the medically important insects and Veterinary Insect Pests

Learning Outcomes

Upon completing this course, students will be able to:

- Identify and describe the importance of medical and veterinary pests: Recognize and describe the biology, ecology, and behavior of various pests, including insects, arachnids, and rodents.
- Understand the role of pests in disease transmission: Explain the role of pests in transmitting and maintaining diseases, and understand the impact of pest-borne diseases on human and animal health.
- Apply integrated pest management principles: Design and implement integrated pest management strategies that incorporate multiple control methods, including chemical, biological, physical, and cultural controls.

- Use surveillance data for pest management decision-making: Collect and analyze surveillance data to inform pest management decisions, and understand the importance of monitoring pest populations and activity.
- Select and apply appropriate pest control methods: Choose and apply effective pest control methods, including chemical, biological, physical, and cultural controls, and understand their advantages and limitations.
- Understand the importance of personal protective equipment (PPE) and other prevention methods: Recognize the importance of PPE and other prevention methods in preventing pest-borne diseases, and understand how to use them effectively.
- Communicate effectively about pest management: Communicate effectively with various stakeholders, including the public, healthcare professionals, and animal owners, about pest management strategies and risks.

Theory **30 h**

Unit-1: Introduction **4 h**

Definitive host, Intermediate host, Parasitism, Ecto- & Endoparasites of skin, Symbiosis, Commensalism, Reservoir, Zoonosis.

Unit- 2: Medically important insect pests **8 h**

Mosquitoes: Anopheles, Culex, Aedes. Rat Flea, Head and body louse, Bed bug, Sand fly Insect, Endoparasites (*Dermatobia hominis and Calliphoridae*)

Unit- 3: Transmission and control of various pathogens and insect vectors **12 h**

Plasmodium vivax, Trypanosoma gambiense; Wuchereria bancrofti, Dengue virus**.** Control of insect vectors of public health. Management of vector borne diseases by Integrated Vector Management.

Unit-4: Veterinary Insect Pests, their life cycle, transmission and control of diseases **6 h**

Flies, Mosquitoes, Ticks, Fleas, Lice and Mites

Practicals **60 hrs**

(Laboratory periods: 15 classes of 4 hours each)

1. Field collection of immature stages of mosquitoes and preparation of temporary slides.
2. Study of ~~few~~ available pathogens of arthropod-borne diseases. Malaria, Culex, Dengue
3. Study of different mosquitoes through photographs

4. Study of life history stages of medically important arthropods by using slides/ photographs: Flies, Ticks, Fleas, Lice and Mites
5. Visit any Vector borne disease lab or carry out a survey of breeding places of Vectors and make a report on your visit/ survey

Suggested Readings:

1. Mullen, Gary R. and Durden, Lance A. (2019). Medical and Veterinary Entomology. Elsevier ; 3rd Edition. ISBN 978-0-12-814043-7
2. Ramnik. Sood (2009) Medical Laboratory Technology Methods and Interpretations, 6th edition; Jaypee Brothers Medical Publishers, ISBN-13: 978-8184484496.
3. Robbins, Basic Pathology, 9th edition (2012), Kumar, Abbas, Fausto and Mitchell; Saunders Publication, ISBN-13: 978-1437717815

Additional Resources:

1. UGC INFONET / DU E-Resources & Sci Finder Web Version registration
2. Arora, D.R and Arora, B. (2001) Medical Parasitology. II Edition. CBS Publications

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