**Course Code:** ZOO-406 **Course Title: Vector Biology**
**Number of Credits:** 2
**Effective from AY:** 2020 -21

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| **Prerequisite for the Course:** | Basic working knowledge of taxonomy, biodiversity, arthropodology. | |
| **Objectives:** | This course will help the learner to understand the all concept and components of arthropods, in depth, involved in causing diseases. Additionally this course also covers the field of modern vector biology, giving an exposure to the emerging subjects like Proteomics. Moreover the course also deals with vector and disease control and focuses on common mosquito linked diseases. | |
| **Content** | **Module 1**<br>Introduction to vector biology and its importance in public health management.<br>Arthropod as disease vectors, taxonomy, classification, biology, ecology.<br>Arthropod transmitting bacteria and viruses of medical importance; Major vector borne diseases; Vector-parasite interaction; Host-pathogen interaction; Factor in disease transmission.<br>Special reference to mosquitoes as vectors, Biology, Bio-ecology, Life history of Anopheles, Culex, and Aedes mosquitoes, malaria, filariasis, dengue, Chikungunya and Japanese encephalitis.<br>**Module 2**<br>General Characters and classification, history, distribution, morphology, biology, life cycle, mode of infection, signs and symtoms, diagnosis, molecular biology, drug resistance, treatment, preventive measures and control of: Flies, Bugs, Fleas And Lice.<br>Modern vector biology; Genomics and Proteogeomics of vectors.<br>Chemical and biological and environmental control of vectors; Integrated vector management, vector resistance mechanism. | 1 hr<br>2 hrs<br>6 hours<br>3 hrs<br>6 hrs<br>6 hrs |
| **Pedagogy:** | Lectures/Tutorials/Videos/Assignments/Group discussion/Self-study. | |
| **Learning Outcome:** | 1. Learner will understand the concept and components of vectors, their behavior, taxonomy, morphology, life cycle and entire biology.<br>2. Understand insects as parasites and the various linked diseases.<br>3. Sufficient knowledge of modern vector biology and proteogeomics.<br>4. Know about vector control and integrated vector management.<br>5. Create and communicate knowledge on the causes and prevention of vector borne disease in the population, to promote health and health services.<br>6. Learn about mosquito linked diseases. | |
| **References /Reading** | 1. Mani MS (1982), General Entomology, Oxford and IBH Publishing Co.,New Delhi. | |

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| | 3. Rathnaswamy GK (1986), A Hand book of Medical Entomology and Elementary Parasitology, S.Vishwanath Pvt.Ltd., India.<br>4. Bruce ED, Eldridge F and Edman JD (2000), Medical Entomology, Kluwer Academic Publishers, UK.<br>5. Kahn HA (1983), Introduction of Epidemiology Methods, Oxford University Press, New York.<br>6. Snodgrass RE (1935), Principles of Insect Morphology, Tata McGraw Hill publishing co. India.<br>7. Mullen G and Durden L (2002), Medical and Veterinary Entomology, Academic Press, USA.<br>8. Kettle DS (1984), Medical and Veterinary Entomology, Cabi Press, USA.<br>9. Service MW (2012), Medical Entomology for students, Cambridge University Press, UK.<br>10. Service MW (1993), Mosquito Ecology, Field sampling methods, Applied Science Publishing Ltd., London.<br>11. Marquardt WC (1996), Biology of disease vectors (2nd Edition), Doody Enterprises, Inc.USA. |