

DISCIPLINE SPECIFIC ELECTIVES (DSE-3): Medical Zoology Zoo-DSE-3

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
		Lecture	Tutorial	Practical/ Practice		
Medical Zoology Zoo-DSE-3	04	03	00	01	Passed 12 th Class	NIL

Learning Objectives

The learning objectives of this course are as follows:

- This course offers an insight about the various types of human diseases.
- The students will understand the concepts of pathogenic and pathological basis of diseases including infectious diseases caused by viruses, prokaryotes, protozoans, helminthes, vector borne and zoonotic diseases.
- Learn about nutritional deficiencies and lifestyle diseases, endocrine diseases and cancer.

Learning Outcomes

By studying this course, students will be able to:

- understand various types of human diseases.
- clarify the concepts of pathogenic and pathological basis of diseases.
- Recognize deficiencies and lifestyle diseases, endocrine diseases and cancer.
- broaden the understanding of medical importance of studying Zoology.

SYLLABUS OF DSE-3

UNIT-1: Introduction to Infectious diseases 6 hrs

Concept of Epidemiology, Incidence, Prevalence, Virulence, Pathogenicity, Transmission, Definitive host, Intermediate host, Parasitism, Symbiosis, Commensalism, Reservoir, Zoonosis.

UNIT- 2: Transmission, prevention and control of Viral infection 6 hrs

Dengue, Polio, Measles, Mumps, influenza, SARS, HIV.

UNIT-3: Bacterial infections 6 hrs

Tetanus, Diphtheria, Tuberculosis, Typhoid, Cholera; brief account of *Rickettsia*, *Borellia*, *Treponema* and *Leptospira*.

UNIT- 4 Protozoan and Helminthic infection 6 hrs

Life history and pathogenicity of *Entamoeba histolytica*, *Plasmodium vivax*, *Trypanosoma gambiense*; *Wuchereria bancrofti*, *Faciolopsis buski*, *Ancylostoma duodenale*.

UNIT-5: Nutritional deficiency and lifestyle-based diseases. 6 hrs

Kwashiorkar, Marasmus, Beri-beri, Scurvy, Pellagra, Anaemia, Night blindness, Rickets, Osteoporosis, Obesity, Cardiovascular diseases (CVD), Atherosclerosis, Diabetes mellitus, Inflammatory Bowel Disease (IBD).

UNIT-6: Endocrine Diseases 9 hrs

Hormonal imbalances leading to diseases: Diabetes insipidus, Acromegaly, Gigantism, Dwarfism, Goitre, Cretinism, Cushing and Crohn's syndrome, Addison's disease.

UNIT-7: Cancer 6 hrs

Definitions, Nomenclature, characteristics of benign and malignant neoplasms, grading and staging of cancer, biology of tumor growth, invasion and metastasis, carcinogens and cancer.

Practical 30 hrs

(Laboratory periods: 15 classes of 2 hours each)

1. Study of Disease specific bacteria and viruses through pictures/micrographs/Videos.
2. Performing of gram staining and study of Acid Fast staining through permanent slides.
3. Urine analysis for abnormal constituents: protein, blood, bile salts and glucose.
4. Study of arthropod vectors associated with human diseases: *Anopheles*, *Aedes*, *Culex*, *Phlebotomus*, *Xenopsylla*.
5. Study of permanent slides and specimens of *Plasmodium sp*, *Entamoeba histolytica*, *Trypanosoma gambiense*, *Schistosoma haematobium* and *Wuchereria bancrofti*.
6. Study of endocrine diseases through case studies (any 2).
7. Identification and study of cancer cells- Slides/Photomicrographs/Videos.
8. Project work/report: field visit to a research institute/laboratory to study some of the pathological and diagnostic techniques.

Essential/recommended readings

1. Park, K. (2017) Textbook of Preventive and social medicine. 23rd Edition. B.B Publisher.
2. Robbins, Basic Pathology, 9th edition (2012), Kumar, Abbas, Fausto and Mitchell; Saunders Publication, ISBN-13: 978-1437717815
3. Ramnik. Sood (2009) Medical Laboratory Technology Methods and Interpretations, 6th edition; Jaypee Brothers Medical Publishers, ISBN-13: 978-8184484496.

Suggested readings

1. Robbins and Cotran. Pathologic Basis of Disease, 8th edition (2009), Vinay Kumar, Abul. K. Abbas, Jon C. Aster, Nelson Fausto; Saunders Publishers, ISBN-13: 978-1416031215
2. Arora, D.R and Arora, B. (2001) Medical Parasitology. II Edition. CBS Publications