K. T. S. P. Mandal's

Hutatma Rajguru Mahavidyalaya, Rajgurunagar.

Department of Zoology

Teaching Plan (A.Y.2024–2025)

F.Y. B. Sc. Zoology

Course Title: **Cell Biology and Biomedical Techniques (T)**, **Course Code: ZOO - 151 - T**

Sr. No	Month	Topics	Teacher
1	Dec	**Overview of Cells :** 1.1 Prokaryotic (*E. coli*) and Eukaryotic (Plant & Animal) cells. 1.2 Microscopy – Simple and Compound microscope. 1.3 Micrometry. 1.4 Types of Stains: Acidic, Basic and Neutral.	DNB
2	Jan	**Plasma Membrane:** 2.1 Models of plasma membrane. 2.2 Transport across membranes: Active and Passive transport, Facilitated transport, endocytosis, exocytosis. 2.3 Cell – Cell Junction: Structure and function, Tight junctions, Adherent junctions, Gap junctions, Desmosomes and Hemi-desmosomes.	DNB
3	Jan	**Cell organelles: Structure and functions -** 3.1 Nucleus and nuclear pore complex. 3.2 Endoplasmic Reticulum. 3.2 Golgi Complex. 3.3 Lysosomes. 3.4 Ribosome. 3.5 Peroxisomes. 3.6 Mitochondria.	DNB
4	Feb	**Cell Division:** 4.1 Cell Cycle. 4.2 Mitosis. 4.3 Meiosis.	DNB
5	Feb	**Introduction and Scope of Biomedical Techniques.** 5.1 Lab safety techniques and sterilization.	DNB
6	Feb & March	**Laboratory Instruments: Introduction, principle and working -** 6.1 Centrifugation. 6.2 Chromatography. 6.3 Spectroscopy. 6.4 Electrophoresis. 6.5 Microtomy.	DNB
7	March	**Biomedical Instruments: Introduction, Principle & Brief working of -** 7.1 Electrocardiography (ECG). 7.2 Ultrasound / Sonography. 7.3 Polymerase Chain Reaction (PCR).	DNB

8	**March & April**	**Clinical Techniques: Introduction and working principle.** 8.1 Blood collection. 8.2 Anticoagulants. 8.3 Preparation and staining of blood smears. 8.4 Differential Leucocyte Count. 8.5 Hemocytometry (RBC and WBC). 8.6 Hemoglobin estimation.	**DNB**
9	**April**	**Urine analysis:** 9.1 Collection of urine sample. 9.2 Preservation of urine sample. 9.3 Routine urine analysis – Physical, bio-chemical and microscopic examination.	**DNB**

Prof. D. N. Birhade

S. Y. B. Sc.
Course Title: Animal Diversity - IV
Course Code: ZO – 241

Month	Title	Teacher Name
Jan	**Introduction to class –Reptilia** Salient features of class Reptilia with one example (name only) – *Chelone*, *Calotes*. Venomous and Non-venomous snakes – Cobra, Russell's viper, Rat snake, Grass snake. Snake venom, symptoms, effect and cure of snake bite, first aid treatment of snakebite. Desert adaptations in reptiles in brief.	**DNB**
Feb	**Introduction to class –Aves** 2.1 Salient features of class Aves with two examples (names only) – Sparrow, Parrot. 2.2 Flight adaptations in birds. 2.3 Types of Beaks and feet in birds. 2.4 Migration in birds – Altitudinal, Latitudinal	**DNB**
March	**3. Introduction to class - Mammalia.** 3.1 Salient features of class Mammalia with two examples (names only) – Rat, Rabbit. 3.2 Egg laying mammals. 3.3 Aquatic adaptations in mammals. 3.4 Flying adaptations in mammals. 3.5 Cursorial and fossorial adaptation in mammals	**DNB**
April	**4. Study of Rat** 4.1 Systematic position, habit and habitat. 4.2 External characters. 4.3 Digestive system, food and feeding.4.4 Respiratory system.4.5 Blood vascular system – Structure of Heart.4.6 Nervous system – Central Nervous system only. 4.7 Sense organs – Structure and functions of Eye & Ear ,4.8 Reproductive system	**DNB**

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