K.T. S. P. Mandal's

Hutatma Rajguru Mahavidyalaya, Rajgurunagar.

Department of Zoology

Syllabus Completion report

A.Y.-2023-2024

Class- F.Y. B. Sc. **Paper II ZO 122**

Course Title: Cell biology **Semester II**

Month	Title	Teacher Name
Jan	**Introduction:** 1.1 Introduction cell biology, 1.2 Cell as basic unit of life. 1.3 Importance of Cell Biology and its applications in industry. **Overview of Cells** 1.3 Introduction to Prokaryotic and Eukaryotic cells. 1.4 Structure and function of Prokaryotic *(E. coli)* 1.5 Structure and function of Eukaryotic cells (Animal and Plant Cell)	**SVT**
Jan	**Techniques in Cell Biology:** 3.1 Introduction 3.2 Microscopy: Basic Principle, Simple, Compound and applications of Electron Microscope. 3.3 Stains and dyes: Types of Stain: Acidic, basic and neutral. Dye (Preparation and chemistry of dyes not expected) 3.4 Micrometry.	**SVT**
Feb	**Plasma Membrane:** 4.1Introduction 4.2 Structure of plasma membrane: Fluid mosaic model. 4.3Transport across membranes: Active and Passive transport, Facilitated transport, exocytosis, endocytosis, phagocytosis – vesicles and their importance in transport. 4.4 Other functions of Cell membrane in brief Protection, cell recognition, shape, storage, cell signalling. 4.5 Cell Junctions: Tight junctions, gap junctions, Desmosomes.	**SVT**
Feb	**Nucleus: Structure and function** 5.1Introduction to Nucleus 5.2 Structure of Nucleus: Nuclear envelope, Nuclear pore complex, Nucleoplasm, Nucleolus	**SVT**

	5.3 Chromatin: Eu-chromatin and Hetro-chromatin, nature and differences. 5.4 Functions of nucleus apparatus, Lysosomes and vacuoles.	
March	**Endomembrane System** 6.1 Introduction 6.2 Structure, location and Functions: Endoplasmic Reticulum, Golgi **Mitochondria and Peroxisomes** 7.1 Introduction 7.2 Mitochondria: ultrastructure and function of mitochondrion.	**SVT**
March	7.3 Peroxisomes **Cell Division** 7.1 Introduction 7.2 Cell cycle (G1, S, G2, M phases), 7.3 Mitosis. 7.4 Meiosis.	**SVT**

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Syllabus Completion report

A.Y.-2023-2024

Class- S.Y. B. Sc. **Paper II**

Course Title: Applied Zoology II

Month	Title	Teacher Name
Feb	**Apiculture:** **1.1 An introduction to Apiculture, Systematic position, Study of habit, habitat and nesting** behaviour of *Apis dorsata*, *Apis indica*, *Apis florae* and *Apis mellifera*. **1.2 Life cycle, Colony organization and Division of labour.** **1.3 Bee behaviour and communicatio**n (Round Dance and Wag-Tail Dance) . **1.4 Bee keeping equipment:** a) Bee box (Langstroth type), b) Honey extractor, c) Smoker, d) Bee-veil, e) Gloves, f) Hive tool, g) Bee Brush, h) Queen excluder	**SVT**
Feb	**1.5 Bee keeping and seasonal management.** **1.6 Bee products (composition and uses) :** a) Honey, b) Wax, c) Bee Venom, d) Propolis, e) Royal jelly, f) Pollen. **1.7 Diseases and enemies of Bees :** a) Bee diseases - Protozoan (Nosema), Bacterial (American foul brood), Viral (Sac brood), Fungal (Chalk brood). b) Bee pests - Wax moth (Greater and Lesser), Wax beetle. c) Bee predators - GreenBee eater, King crow, Wasp, Lizard. **1.8 Bee pollination and management of bee colonies for pollination.**	**SVT**
March	**2. Fisheries :** **2.2 An introduction to fisheries and its types (in brief) :**	**SVT**

	Freshwater fisheries, Marine fisheries, Brackish water fisheries. **2.3 Habit, habitat and culture methods of following freshwater forms :** a) Rohu (*Labeo rohita*) , b) Catla (*Catla catla*) , c) Mrigal (*Cirrhinus mrigala*). **2.3 Harvesting methods of following marine forms:** a) *Harpodon*, b) Mackerel, c) Pearl oyster.	
April	**2.4 Crafts and Gears in Indian Fishery:** a) Crafts – Catamaran, Machwa, Dinghi. b) Gears – Gill net, Dol net, Rampani net, Cast net. **2.5 Fishery byproducts:** a) Fish meal, b) Fish flour, c) Fish Liver oil, d) Fish manure, e) Fish fin soup. **2.6Fish preservation technique:** a) Chilling, b) Freezing, c) Salting, d) Drying, e) Canning	**SVT**

As per mention above 95% syllabus is completed and remaining will be complete in first week of April 2024.

Prof. Dr. Theurkar S.V.

Department of Zoology

Syllabus completion Report (A.Y. 2023 – 2024)
T. Y. B. Sc. Zoology
ZO- 364 Entomology

Sr. No	Month	Topic	Professor
1	Jan	**1. Fundamentals of Entomology** 1.1 Definition and scope of Entomology. 1.2 General Classification of Insects. 1.3 General Characters of Insects.	SVT
2	Jan	**2. Insect Morphology:** 2.1 Insect Integument and its derivatives. 2.2 Insect Head, Head Orientations, Head articulations, Insect antennae and Mouth parts. 2.3 Insect Thorax, Insect Wing and modifications, Insect Leg and Modifications – a) Cursorial – Cockroach, b) Fossorial – Mole cricket, c) Saltorial – Grasshopper, d) Raptorial – Praying mantis, e) Pollen basket – Honey bee. 2.4 Insect Abdomen, Genital and Pre – genital appendages of Grasshopper.	SVT
3	Feb	**3. Insect Anatomy (Grasshopper):** 3.1 Digestive System. 3.2 Circulatory System. 3.3 Nervous System. 3.4 Respiratory System. 3.5 Reproductive System.	SVT
4	Feb	**4. Insect Ecology:** 4.1 Definition of Insect Ecology. 4.2 Abiotic Factors (Photoperiod, Temperature and	SVT

		Humidity) and Biotic Factors (Food, Foraging and Nesting). 4.3 Mimicry in insects with suitable examples.	
5	March	**5. Insect Metamorphosis:** 5.1 Definition. 5.2 Types and examples of Metamorphosis.	SVT
6	March	**6. Insects as social groups:** 6.1 Definition & significance of Eusociality, Intraspecific and Interspecific relationships among insects. 6.2 Social organization in Wasps and Termites.	SVT
7	April	**7. Economic Importance of Insects:** 7.1 Insects in Research. 7.2 Insects in Medicines and Cosmetics. 7.3 Insects as Vectors. 7.4 Insects as food.	SVT

As per mention above 95% syllabus is completed and remaining will be complete in April 2024.

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Syllabus completion Report
(A.Y. 2023 – 2024)
T. Y. B. Sc. Zoology
ZO – 3611 Project

Students have successfully completed the research project in the stipulated time and present the dissertation at the time of the examination in a proper format. Students were encouraged from laboratory work, hands-on practical investigation and design experimental setup. Field work to be carried out under proper supervision and permissions from the concerned authorities.

Possible key aspects of the project work -

1. **Planning the project**
2. **Selecting a suitable title**
3. **Significance of the work**
4. **Hypothesis, Objectives**
5. **Reviewing the available literature**
6. **Methodology to be used**
7. **Outcomes of the Project work**
8. **Conclusion and Discussion**
9. **Future plans**

Future Plan:

All the students Research projects will try to publish in UGC care list Research Journals.

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