

Satyaniketan's

Adv. M. N. Deshmukh Arts, Science and Commerce College, Rajur

Annual Teaching Planning 2024-2025

F.Y. B.Sc. Zoology (NEP 2020) Semester I

Subject Name -: ZOO - 101 - T: Genetics and Medical Zoology (T)

Teacher's Name- Prof. Kasar R. N.

Sr. No.	Month	Topic	No. of Periods
1.	July 2024	Recapitulation of Mendelian Genetics Non-Mendelian Genetics Multiple alleles	07
2.	August 2024	Chromosomes Sex Determination	08
3.	September 2024	Sex-linked Inheritance Introduction to Medical Zoology Epidemic Diseases in Human Vector Borne Diseases in Human Microbial Diseases in Human	07
4.	October 2024	Microbial Diseases in Human Investigations and treatments of human physiological disorders	08
Total			30

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F.Y. B.A. OE-Zoology Semester I

Subject Name -: OE - 101 - ZOO: Apiculture (T)

Teacher's Name- Prof. Kasar R. N.

Sr. No.	Month	Topic	No. of Periods
1.	August 2024	Study of honey bees: 1.1 Introduction. 1.2 Systematic Position, habit, habitat, distribution, marks of identification and nesting behavior of <i>Apis dorsata</i> , <i>Apis indica</i> , <i>Apis florae</i> and <i>Apis mellifera</i> . 1.3 Life cycle of honey bee, colony organization and division of labour. Study of Behavior and Equipments: 2.1 Bee behavior and communication - Round dance and Wag-tail dance. 2.2 Artificial bee rearing (apiary) : Beehives (Langstroth), Beekeeping and seasonal management.	10
2.	September 2024	2.3 Bee keeping equipments – Comb foundation sheet, Honey extractor, Uncapping knife, Smoker, Hive tool, Overall, Bee veil, Bee gloves, High boots, Bee brush, D. B. feeder. 2.4 Methods of extraction of honey. (Indigenous and Modern) Study of Enemies and Diseases: 3.1 Enemies of honey bee : Wax moth, Wax beetle, Wasps, Ants, Birds (Green bee eater, King crow), Amphibians and Mammals.	10
3.	October 2024	3.2 Bee diseases : Protozoan (Nosema), Bacterial (American foul brood), Viral (Sac brood), Fungal (Chalk brood). 3.3 Control and preventive measures of Bee diseases. Bee economics and Marketing: 4.1 Bee Economy : Products of apiculture industry and its uses - honey, bees wax, propolis, pollen, bee venom, royal jelly. 4.2 Bee pollination and management. 4.3 Entrepreneurship in Apiculture.	10
Total			30

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S.Y. B.Sc. Zoology Semester III

Subject Name -: **ZO 232 – Applied Zoology-I**

Teacher's Name- **Prof. Kasar R. N**

Sr. No.	Month	Topic	No. of Periods
1.	July 2024	1) Sericulture 1.1 An introduction to Sericulture, Study of different types of silk moths, their distribution, Taxonomic position and varieties of silk produced in India: Mulberry, Tassar, Eri and Muga silk moths. 1.2 External Morphology and life cycle of Bombyxmori.	06
2.	August 2024	1.3 Cultivation of mulberry: a) Varieties for cultivation, b) Rain fed and irrigated mulberry cultivation- Fertilizer schedule, Pruning methods and leaf yield. 1.4 Harvesting of 1.5 Silk worm 1.6 Preparation of cocoons for marketing. 1.7 Post harvest processing of cocoons 1.8 Biotechnological and biomedical applications of silk	10
3.	September 2024	2) Agricultural Pests and their control 2.1 An introduction to Agricultural Pests, types of pests (agricultural, store grain, veterinary). 2.2 Major insect pests of agricultural importance (Marks of identification, life cycle, nature of damage and control measures).	10
4.	October 2024	2.3 Non insect pests: Rats, Crabs, Snails, and Squirrels 2.4 Pest control practices in brief and Concept of IPM in brief. 2.5 Plant protection appliances: Shoulder type Rotary duster, Knapsack sprayer, Cynogas Pump.	04
Total			30

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T.Y. B.Sc. Zoology Semester V
Subject Name :- ZO 353 – Biological Chemistry
Teacher's Name- Prof. Kasar R. N.

Sr. No.	Month	Topic	No. of Periods
1	August 2024	1. Introduction of Biochemistry: Importance of Biochemistry in Life Sciences. 2. p H and Buffers: 2.1 Concept of pH. 2.2 Concept of pH scale, biological significance of p H 2.3 Concept of acid and base, Ionization of acids and bases. 2.4 Derivation of Henderson-Hassel Balch equation & its applications. 2.5 Buffer - Definition, Concept, Functions, Types of buffer and Buffering Capacity. 3. Carbohydrates: 3.1 Definition, Classification & Biological importance of Carbohydrates. 3.2 Isomerism in carbohydrates - Structural and Stereoisomerism. 3.4 Significance of Gluconeogenesis, Glycogenolysis and Glycogenesis. 3.3 Clinical Significance - Hypoglycemia and Hyperglycemia.	10
2	September 2024	4. Amino acids and Proteins: 4.1 General Structure of amino acids and Peptide bond. 4.2 Essential and non-essential amino acids. 4.3 Types of proteins, protein structures Forces responsible for their stability. 4.5 Biological importance of proteins 5. Enzymes: 5.1Nomenclature, Types and properties of enzymes. 5.2 Regulatory and non-regulatory enzymes.	10
3	October 2024	5.3 Enzyme inhibition. 5.4 Factors influencing enzyme activity 5.5 Introduction of isoenzymes and cofactor. 5.6 Clinical significance of enzymes - PKU and AKU. 6. Lipids 6.1 Introduction. 6.2. Fatty acids - Types and nomenclature (saturated and unsaturated). 6.3 Clinical significance (obesity, atherosclerosis, myocardial infarction). 6.4 Biological importance of lipids.	10
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F.Y. B.Sc. Zoology (NEP 2020) Semester II

Subject Name -: ZOO - 151 - T: Cell Biology & Biomedical Techniques (T)

Teacher's Name- Prof. Kasar R. N.

Sr. No.	Month	Topic	No. of Periods
1.	January 2025	Overview of cells Plasma membrane Cell organelles: Structure and functions	02 03 06
2.	February 2025	Cell Division Introduction and scope of biomedical techniques Laboratory instruments: Introduction, principle and working	04 01 04
3.	March 2025	Biomedical Instruments: Introduction, principle & brief working Clinical Techniques: Introduction and working principle	03 04
4.	April 2025	Urine analysis	03
Total			30

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S.Y. B.Sc. Zoology Semester IV
Subject Name :- ZO-242- Applied Zoology II
Teacher's Name- Prof. Kasar R. N.

Sr. No.	Month	Topic	No. of Periods
1.	January 2025	1. Apiculture: 16 1.1 An introduction to Apiculture, Systematic position, Study of habit, habitat and nesting behaviour of <i>Apis dorsata</i> , <i>Apis indica</i> , <i>Apis florea</i> and <i>Apis mellifera</i> . 1.2 Life cycle, Colony organization and Division of labour. 1.3 Bee behaviour and communication (Round Dance and Wag-Tail Dance). 1.4 Bee keeping equipments : a) Bee box (Langstroth type), b) Honey extractor, c) Smoker, d) Bee-veil, e) Gloves, f) Hive tool, g) Bee Brush, h) Queen excluder.	08
2.	February 2025	1.5 Bee keeping and seasonal management 1.6 Bee products (composition and uses): 1.7 Diseases and enemies of Bees : a) Bee diseases b) Bee pests -. c) Bee predators - 1.8 Bee pollination and management of bee colonies for pollination.	08
3.	March 2025	2. Fisheries : 14 2.2 An introduction to fisheries and its types (in brief) : Freshwater, Marine fisheries, Brackish water fisheries. 2.3 Habit, habitat and culture methods of following freshwater forms : 03 a) Rohu, b) Catla c) Mrigal 2.3 Harvesting methods of following marine forms:	08
4.	April 2025	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: 2.6 Fish preservation technique:	08
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T.Y. B.Sc. Zoology Semester VI
Subject Name :- ZO 363 - Molecular Biology
Teacher's Name- Prof. Kasar R. N.

Sr. No.	Month	Topic	No. of Periods
1	December 2024	1. Nucleic Acids and Chromatin: 1.1 Structure of RNA & DNA. 1.2 Types of RNA. 1.3 DNA as genetic material - evidences (Griffith's, Avery et al., Hershey and Chase experiment), RNA as genetic material - TMV 4. 1.4 Structure of Chromatin, packaging of DNA, Heterochromatin, Euchromatin.	7
2	January 2025	2. Central Dogma of Molecular Biology: 2.1 DNA Replication - Semiconservative (Messelson and Stahl experiment), Basic mechanism of replication in prokaryotes and eukaryotes.	7
3	February 2025	2.2 Transcription – 2.2.1 Basic mechanism of transcription in prokaryotes and eukaryotes, RNA polymerase enzyme in prokaryotes. 2.2.2 RNA modifications and processing (splicing - mRNA, modifications at 3' and 5' end). 2.3 Translation - Genetic code, properties of genetic code, Basic mechanism of Translation in E. coli and eukaryotic cells	8
4	March 2025	. 3. Lac operon: 4. DNA repair mechanism: Photo repair, dark repair, base excision repair. 5. Recombinant DNA Technology: Introduction, restriction enzymes, cloning vector, PCR (polymerase chain reaction), DNA finger printing	8
Total			30