

"Dissemination of Education for Knowledge, Science and Culture"

-Shikshanmaharshi Dr. Bapuji Salunkhe


Shri Swami Vivekanand Shikshan Sanstha's  
**Vivekanand College, Kolhapur**  
**(An Empowered Autonomous Institute)**  
**Department of Zoology**  
**Academic year: 2024-25**

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## Syllabus Completion Report (Term II)

1. Dr. G. K. Sontakke
2. Dr. T. C. Gaupale
3. Dr. S. S. Desai
4. Mr. G. H. Fadake
5. Ms. N. A. Patel
6. Dr. T. C. Patil
7. Ms. P. S. Shetfalkar
8. Ms. N. A. Jadhav
9. Ms. P. R. Gaikwad



  
Dr. G. K. Sontakke  
HEAD  
DEPARTMENT OF ZOOLOGY  
VIVEKANAND COLLEGE, KOLHAPUR  
(EMPOWERED AUTONOMOUS)

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**Vivekanand College, Kolhapur (An Empowered Autonomous Institute)**

**Department of Zoology**

**Academic year: 2024-2025**

**Syllabus Completion Report**

**Name of the Teacher: Dr. G. K. Sontakke**

**Term: II**

**Class: B.Sc. II Minor (Theory)**

**Name of the Paper: Paper VII, Tools and Techniques in Biology (MIN03ZOO41)**

Month	Module unit	Subunit completed	Remaining unit
December 2024	UNIT-I	Elements of Microtomy: Pre-microtomy process, ,	Nil
January 2025	UNIT-I	Microtomy process	Nil
February 2025	UNIT-I	Post-microtomy process, Rotary Microtome	Nil
March 2025	UNIT- I	Types of Stain, Methods of staining and mounting.	Nil

**Class: B. Sc. III (Theory)**

**Name of the Paper: Paper- XVI, Aquatic Biology (DSE-1008F)**

Month	Module unit	Subunit completed	Remaining unit
December 2024	UNIT-II	Marine Biology Introduction of marine ecosystem: Structure & zonation of sea & ocean	Nil
January 2025	UNIT-II	Physico-chemical properties of seawater- salinity, density, viscosity, surface tension, concept of chlorinity and salinity of sea water.	Nil
February 2025	UNIT-II	Coral & coral reefs: Types & economic importance	Nil
March 2025	UNIT- II	Continental shelf, adaptations of deep sea organisms.	Nil

**Class: B.Sc. I (PR)**

**Practical: Zoology Lab (1): 2DSC03ZOO19 (Practical I)**

Month	Practical completed	Remaining unit
December 2024	<ol style="list-style-type: none"> <li>Study of the following specimens with reference to morphological peculiarities and Classification up to orders: Protochordata: Amphioxus Cyclostomata: Petromyzon, Myxine</li> <li>Study of the Pisces with reference to morphological peculiarities and Classification up to orders: Torpedo, Exocoetus, Labeo</li> <li>Study of the Ambhibia with reference to morphological peculiarities and Classification up to orders: Ichthyophis, Bufo</li> <li>Study of the Reptiles with reference to morphological peculiarities and Classification up to orders: Draco, Chamaeleon</li> </ol>	Nil
January 2025	<ol style="list-style-type: none"> <li>Study of the Aves with reference to morphological peculiarities and Classification up to orders: Passer, Columba</li> <li>Study of the Mammals with reference to morphological peculiarities and Classification up to orders: Funambulus, Loris</li> <li>Characters identifying venomous and non-venomous snakes</li> <li>Study of any six common birds from different orders with the help of photographs and keys.</li> <li>Mounting of placoid/cycloid scale</li> </ol>	Nil
February 2025	<ol style="list-style-type: none"> <li>Demonstration of Barr bodies</li> <li>Study of Mendelian Inheritance using suitable examples.</li> <li>Study of gene interactions (Non-Mendelian Inheritance)</li> <li>Study of Human Karyotypes (normal and abnormal)</li> <li>Study of polytene chromosome</li> </ol>	Nil
March 2025	<ol style="list-style-type: none"> <li>Study of Sex determination in Drosophila</li> <li>Examples based on pedigree analysis</li> <li>Study of genetic disorders (with images/photographs) Turner's syndrome, Patau's syndrome, Down syndrome</li> </ol>	Nil

**Class: B.Sc. II (PR)**

**Practical: VSC03ZOO39**

Month	Practical completed	Remaining unit
December 2024	<ol style="list-style-type: none"> <li>To study the anatomy of the fin fishes.</li> <li>To study the digestive and reproductive system of fin fishes</li> <li>Mounting of placoid and cycloid scales</li> <li>To study the induced breeding in fishes</li> </ol>	Nil
January 2025	<ol style="list-style-type: none"> <li>Identification of commercially important fin fishes</li> <li>Identification of commercially important shell fishes</li> <li>Estimation of carbonate and bicarbonate in water samples</li> <li>Estimation of chloride from water samples.</li> <li>Estimation of ammonia from water samples</li> </ol>	Nil
February 2025	<ol style="list-style-type: none"> <li>Methods of quality assessment to examine the freshness of fish.</li> </ol>	Nil


	11. Maintenance of collected fishes/ Preservation techniques 12. Method of Transportation of Fish Seeds	
March 2025	13. Study of Fish by-products 14. Modern Crafts and Gears. 15. Estimation of muscle protein in fish by Biuret method.	Nil

**Class: B.Sc. III (PR)**

**Practical: Practical-VIII (Based on Paper No. XV & XVI)**

Month	Practical completed	Remaining unit
December 2024	1. Determination alkalinity of given water sample 2. Determination total hardness of given water sample	Nil
January 2025	3. Determination of chloride from given water sample 4. Study of ecological pyramids	Nil
February 2025	5. Study of coral reefs (model) 6. Report on a visit to a Sewage treatment plant/Marine bio reserve/ Fisheries Institutes	Nil

  
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**Department of Zoology**  
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**Syllabus Completion Report**

**Name of the Teacher: Dr. T. C. Gaupale**

**Term: II**

**Class: B.Sc. II (Theory)**

**Name of the Paper: Principles of Biochemistry (DSC03ZOO41), Paper- VII**

Month	Module unit	Subunit Completed	Remaining Units
January - 2025	UNIT- II	<b>Protein metabolism</b> Amino acids- Structure, Essential and non-essential amino acids, Protein Structure (Primary, Secondary,	Nil
February - 2025	UNIT- II	Tertiary and Quaternary), Transamination, Deamination and Urea Cycle	Nil
March -2025	UNIT- II	<b>Enzymes</b> Definition, Properties, Nomenclature and classification of enzymes,	Nil
April-2025	UNIT- II	Mechanism of action of enzymes (Induced fit model & Lock and key model), Factors affecting enzyme activity, Inhibition and Regulation of enzyme action	Nil

**Class: B. Sc. III (Theory)**

**Name of the Paper: Paper- XII, Developmental Biology II (DSE -1008E4)**

Month	Module unit	Subunit Completed	Remaining Units
December 2024	UNIT-I	<b>Overview of Immune system 15</b> Introduction to basic concepts in immunology, components of immune system.	Nil
January - 2025	UNIT-I	Types of immunity- Innate immunity (physical, physiological, cellular and cytokine barrier) and adaptive immunity- features of adaptive immunity, active: artificial and natural immunity, passive: artificial and natural immunity	Nil
February - 2025	UNIT-I	Haematopoiesis Cells in immune system- Lymphoid cells (B lymphocytes, T- lymphocytes), natural killer cells (NK cells), phagocytes, granulocytic cells- neutrophils, eosinophils, basophils, mast cells.	Nil
March - 2025	UNIT- I	Organs of immune system- Primary lymphoid organ- bone marrow, thymus, bursa of fabricius. Secondary lymphoid organ- lymph node, spleen, mucosal associated lymphoid tissue (MALT), tonsils, gut associated lymphoid tissue (GALT)	Nil

**Class: B.Sc. I (PR)**

**Practical: ZOOLOGY LAB (1): 2DSC03ZOO19 (Practical I)**

Month	Practical Completed	Remaining Practical
Dec-2024	1. Study of the following specimens with reference to morphological peculiarities and Classification up to orders: Protochordata: Amphioxus Cyclostomata: Petromyzon, Myxine 2. Study of the Pisces with reference to morphological peculiarities and Classification up to orders: Torpedo, Exocoetus, Labeo 3. Study of the Ambhibia with reference to morphological peculiarities and Classification up to orders: Ichthyophis, Bufo 4. Study of the Reptiles with reference to morphological peculiarities and Classification up to orders: Draco, Chamaeleon	Nil
Jan 2024	5. Study of the Aves with reference to morphological peculiarities and Classification up to orders: Passer, Columba 6. Study of the Mammals with reference to morphological peculiarities and Classification up to orders: Funambulus, Loris 7. Characters identifying venomous and non-venomous snakes 8. Study of any six common birds from different orders with the help of photographs and keys	Nil
Feb 2024	9. Mounting of placoid/cycloid scale 10. Demonstration of Barr bodies 11. Study of Mendelian Inheritance using suitable examples. 12. Study of gene interactions (Non-Mendelian Inheritance) 13. Study of Human Karyotypes (normal and abnormal)	Nil
March 2024	14. Study of polytene chromosome 15. Study of Sex determination in Drosophila 16. Examples based on pedigree analysis 18. Study of genetic disorders (with images/photographs) Turner's syndrome, Patau's syndrome, Down syndrome	Nil

**Class: B.Sc. II (PR)**

**PRACTICAL-III (Major)**

**Practical based on Principles of Biochemistry (DSC03ZOO41) and Histology (DSC03ZOO42)**

Month	Practical Completed	Remaining Practicals
January 2025	1. Estimation of glucose by using DNSA methods 2. Separation of amino acids by paper chromatography 3. Identification of Lipids by TLC 4. Qualitative tests to identify proteins and lipids in a given sample 5. Qualitative tests to identify lipids in a given sample 6. Qualitative tests to identify carbohydrates in given solutions (Glucose, Fructose, Sucrose, Lactose, and Starch) 7. Estimation of total protein in given solutions by Lowry's method/Biuret method.	Nil
February - 2024	8. Effect of pH on Salivary Amylase 9. Effect of Temperatures on Salivary Amylase 10. Detection of abnormal urine constituents from a given sample 11. Estimation of glycogen from liver tissue 12. Study of the different types of tissues with the help of permanent slides/photographs -epithelial tissue, connective tissue,	Nil


	muscular tissue, and nervous tissue.	
March 2024-2024	13. Preparation of temporary mounts of striated & smooth muscle fibre. 14. Study of human blood smear to observe different types of blood cells. 15. Study of histological slides of (TS/LS) – bone and cartilage 16. Study of histological slides of (TS/LS) -Oesophagus, Stomach, Duodenum, Rectum, liver, salivary gland. 17. Study of histological slides of (TS/LS) -Brain, spinal cord, kidney, lungs, trachea 18. Study of histological slides of endocrine glands (TS/LS): Pituitary, pancreas, adrenal, thyroid	Nil
April - 2024	19. To study types of fixative used in histology 20. To study types of stains 21. Demonstration of histological staining techniques-HE techniques	Nil

Class: B.Sc. III (PR)

PRACTICAL-VI (BASED ON PAPER NO XI AND XII)

Month	Practical Completed	Remaining Practicals
December - 2024	5. Study of histological structures of placenta (permanent slide or microphotographs) a. Epitheliochorial b. Endotheliochorial c. Hemochorial d. Syndesmochorial e. Hemoendothelial 6. Examination of gametes- Frog or rat sperm & ovum (permanent slides/microphotographs)	Nil
January 2025	7. Demonstration of culture of early chick embryo in vitro 8. <i>Drosophila</i> culture: Cultivation, maintenance	Nil
February 2025	9. Study of larval developmental stages in <i>Drosophilla</i> 10. Identification of fish developmental stages- Egg, larva, juvenile (fry, fingerlings and adult)	Nil
March 2025	11. Preparation of histological slides –Ovaries/ testes 12. Histology of male accessory reproductive glands in human - Prostate gland, bulbourethral glands (permanent slides/microphotographs)	Nil

  
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**Syllabus Completion Report**

Name of the Teacher: Dr. S. S. Desai

Term: II

Class: B.Sc. II (Theory) Name of the Paper: Paper VII, Principles of Biochemistry (DSC03ZOO41)

Month	Module unit	Sub unit	Remark
December 2024	UNIT-I	Carbohydrate Metabolism- Structure, classification and function of Carbohydrate, Glycolysis, Krebs cycle	NIL
January 2025	UNIT-I	Electron transport chain, Pentose phosphate pathway, Gluconeogenesis, Glycogenolysis	NIL
February 2025	UNIT-I	Lipid Metabolism- Structure, classification, properties, types and functions of lipids	NIL
March 2025	UNIT-I	Biosynthesis of fatty acids and cholesterols, $\beta$ oxidation of palmitic acid	NIL

Class: B. Sc. III (Theory)

Name of the Paper: Paper- XI, Ecology and Toxicology (DSE-1008F3)

Month	Module unit	Sub unit	Remark
December 2024	UNIT-I	Introduction and scope of ecology The structure, function, types ecosystem, abiotic and biotic components	NIL
January 2025	UNIT-I	Concept of habitat & niche- niche width and overlap, fundamental & realised niche, Food chain, food web and ecological pyramids, Species interactions-types of interaction (competition, predation, commensalism, parasitism, mutualism, amensalism)	NIL
February 2025	UNIT-I	Community ecology: Nature of communities, characteristics (species richness, dominance, diversity, abundance), ecotone and edge effect, Ecological succession -Types of succession (primary, secondary), stages of succession, mechanisms of succession, types of seres (hydrosere, lithosere)	NIL
March 2025	UNIT-I	Ecological adaptation in aquatic, desert & terrestrial animals	NIL

## PRACTICALS COMPLETION REPORT

Class	Practical No.	Batch	Practical Based on paper	Remaining Practicals
B. Sc. I	<b>Practical: Zoology Lab (1): 2DSC03ZOO19</b>	B2	Animal Diversity II & Genetics	<b>NIL</b>
B. Sc. II	<b>Practical: VSC03ZOO49</b>	Z2	Pisciculture	<b>NIL</b>
B. Sc. III	<b>Practical-V</b>	TA1	Molecular Biology and Biotechniques & Animal Biotechnology	<b>NIL</b>



**Dr. S. S. Desai**



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**SYLLABUS COMPLETION REPORT**

**Name of the-Teacher: Mr. Ganesh H. Fadake**

**Term: II**

**Class: B.Sc. I Sem-II(Theory)**

**Name of the Paper: DSC-IV: 2DSC03ZOO22: GENETICS**

Month	Module unit	Completed Units	Remaining Units
Dec-2024	UNIT-I	Introduction to Genetics: Definition, scope and importance of genetics, Classical and modern concept of gene (Cistron, Muton, Recon),	NIL
Jan-2025	UNIT-I	Brief explanation of following terms: Alleles, Wild type, Mutant allele, Locus, Dominant and recessive trait, Homozygous and heterozygous, Genotype and phenotype, Genome	NIL
Feb-2025	UNIT-I	Mendelian Genetics: Mendel's law of inheritance (Law of Dominance, Segregation and Independent assortment) Monohybrid cross, Dihybrid Cross, Test cross, Back cross.	NIL
Mar-2025	UNIT-I	Extension of Mendelian Genetics: Chromosomal theory of inheritance, Incomplete dominance and co-dominance, Multiple alleles with respect to ABO, RH blood group, Polygenic inheritance with reference to skin colour and eye colour in man, Lethal Alleles, Concept of Pleiotropy.	NIL

**Class: B.Sc. II Sem-III (Minor)**

**Name of the Paper: VIII-Tools and Techniques in Biology (MIN03Z0041)**

Month	Module unit	Completed Units	Remaining Units
Dec-2024	UNIT- II	Separation techniques centrifugation- Basic principle, working and applications.	NIL
Jan-2025	UNIT- II	Density gradient centrifugation and Differential centrifugation	NIL
Feb-2025	UNIT- II	Chromatography - Basic principle of chromatography; Types of chromatography techniques and their applications- Paper and Thin Layer Chromatography (TLC)	NIL
Mar-2025	UNIT- II	Electrophoresis - Basic principle of electrophoresis, types (Agarose and SDS-PAGE), and their applications	NIL

**Class: B. Sc. III Semester: VI (Theory)**

**ZOOLOGY-DSE -1008F2 Zoology-Paper XIV IMMUNOLOGY- II**

Month	Module unit	Completed Units	Remaining Units
Dec-	UNIT-I	Working of the Immune system . Structure and functions of	NIL

2024		MHC	
Jan-2025	UNIT-I	Exogenous and endogenous pathways of antigen presentation and processing	NIL
Feb-2025	UNIT-I	Basic properties of signalling molecules-cytokines and their types	NIL
Mar-2025	UNIT-I	(chemokines, interleukins, interferons, lymphokines, tumour necrosis factor)	NIL

**Class: B.Sc. I Sem-II (PR)**

Practical: DSC- PR-II : 2DSC03ZOO29: DSC ZOOLOGY LAB-2

Month	Completed Units	Remaining Units
Dec-2024	5) Study of the following specimens with reference to morphological peculiarities and Classification up to orders: Protochordata: Amphioxus Cyclostomata: Petromyzon, Myxine 6) Study of the Pisces with reference to morphological peculiarities and Classification up to orders: Torpedo, Exocoetus, Labeo 7) Study of the Ambhibia with reference to morphological peculiarities and Classification up to orders: Ichthyophis, Bufø 8) Study of the Reptiles with reference to morphological peculiarities and Classification up to orders: Draco, Chamaeleon	NIL
Jan-2025	5) Study of the Aves with reference to morphological peculiarities and Classification up to orders: Passer, Columba 6) Study of the Mammals with reference to morphological peculiarities and Classification up to orders: Funambulus, Loris 7) Characters identifying venomous and non-venomous snakes 8) Study of any six common birds from different orders with the help of photographs and keys.	NIL
Feb-2025	5) Mounting of placoid/cycloid scale 6) Demonstration of Barr bodies 7) Study of Mendelian Inheritance using suitable examples. 8) Study of gene interactions (Non-Mendelian Inheritance)	NIL
Mar-2025	6) Study of Human Karyotypes (normal and abnormal) 7) Study of polytene chromosome 8) Study of Sex determination in Drosophila 9) Examples based on pedigree analysis 10) Study of genetic disorders (with images/photographs) Turner's syndrome, Patau's syndrome, Down syndrome	NIL

**Class: B.Sc. II Sem-III (PR)**

Name of the Paper: Tools and Techniques in Biology (MIN03Z0041) and Insect Pest Management (MIN03ZOO42)

Month	Completed Units	Remaining Units
Dec-2024	4) Introduction to microscope 5) Cleaning and maintenance of microscope. 6) Demonstration of different types of Microscope (Simple, Compound, Stereozoom, fluorescence )	NIL
Jan-2025	5) Demonstration of microtomy processes 6) Separation of molecules by density gradient centrifugation 7) Separation of amino acids using paper chromatography	NIL

	8) Separation of amino acids using thin layer chromatography	
Feb-2025	12) To study the Principles and application of the following Instruments. a) Incubator b) Spectrophotometer c) Colorimeter d) Cooling Centrifuge e) Rotary microtome f) Oven 13) Demonstration of DNA separation by agarose gel electrophoresis. 14) Study of morphology of insect (Cockroach/Grasshopper) 15) Study of different types of mouth parts in insect 16) Technique of collection and preservation of insect pests a. Wet preservation b. Dry preservation	NIL
Mar-2024	17) Study of following insect pests with reference to classification, life cycle, marks of identification, nature of damage and management. a. Jowar – Stem borer b. Sugarcane – White grub c. Gram – Pod borer d. Mango – Jassids 18) Study of following stored grain pests with reference to scientific name, life cycle, marks of identification, nature of damage and management. 28 a. Rice weevil b. Pulse beetle 19) Study of beneficial insects and mites belongs to predators and parasitoid (Any two) 20) Collection, preservation and submission of insect pests (Any two) 21) Identification of Insect using key 22) Field visit and observation of insects , submission of report with photographs (any five insect)	NIL

**Class: B.Sc. III Sem-VI (PR)**

**PRACTICAL-VII - PRACTICAL-V (PAPER NO IX AND X)**

Month	Completed Units	Remaining Units
Dec-2024	2) To study following Instruments. a) pH meter b) Spectrophotometer c) Calorimeter d) Cooling Centrifuge e) Laminar air flow f) CO2 incubator	NIL
Jan-2025	4) Visit to tissue culture laboratory and bio-fertilizer industry 5) TLC-Thin layer chromatography 6) Study of DNA by Feulgen technique.	NIL
Feb-2025	4) Microtechnique (HE, AB/ PAS) 5) Genomic DNA isolation from E. coli 6) Plasmid DNA isolation from E. coli	NIL

*Gadake*

**Mr. Ganesh H. Fadake**

*G.K.*

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**Syllabus Completion Report**

**Name of the Teacher: Ms. N. A. Patel**

**Term: II**

**Class: B.Sc. I (Theory) Name of the Paper: Paper Genetics (2DSC03ZOO22)**

Month	Module unit	Sub unit	Remark
December 2024	UNIT-II	Mutations: Mutagenic agents (Physical and Chemical), Chromosomal Mutations: Deletion, Duplication, Inversion, Translocation, Aneuploidy and Polyploidy, Induced gene mutation	NIL
January 2025	UNIT-II	Basics of Human genetics: Autosomes and Sex chromosomes (Structure), Normal human Karyotype Sex Determination: Sex determination in man, Haploidy-diploidy mechanism in Honey bee,	NIL
February 2025	UNIT-II	Environmental sex determination (Bonelia) Genetic Disorders: Causes and symptoms of genetic disorders, Sickle cell Anaemia, Phenylketonuria,	NIL
March 2025	UNIT- II	Genetic Disorders: Albinism, Down syndrome, Turner's Syndrome, Edward Syndrome, Klinefelter syndrome	NIL

**Class: B.Sc. II (Theory) Name of the Paper: Paper VIII, Insect Pest Management (MIN03ZOO42)**

Month	Module unit	Sub unit	Remark
December 2024	UNIT-I	Introduction to Insects and Pest: General characters and morphology of the Insect. Economic importance of insects- A. Beneficial insects (Pollinators of crops, Predators pests, Parasites of pests, Productive insects (Silkworm, Honey bee, Lac insect)	NIL
January 2025	UNIT-I	Injurious insects ( House hold pests, Stored grain pests, Medicinal Pests, Veterinary pests)	NIL
February 2025	UNIT-I	House hold pests: Cockroach, Clothes Moth, Furniture beetle, Silverfish.	NIL
March 2025	UNIT- I	Stored grain pests: Rice weevil, Rice moth, Pulse beetle, Rust red flour beetle.	NIL

**Class: B. Sc. III (Theory)**

**Name of the Paper: Paper- XIII, Immunology (DSE-1008F1)**

Month	Module unit	Sub unit	Remark
December 2024	UNIT-I	Antibodies: Structure, classes and function of antibodies Antigen-Antibody interactions: Cross-reactivity, compliment fixation	NIL
January 2025	UNIT-I	Antigen-Antibody interactions: precipitation reactions, agglutination reactions	NIL
February 2025	UNIT-I	ELISA & its type, immunofluorescence, Hybridoma technology	NIL
March 2025	UNIT-I	Monoclonal antibodies in therapeutics and diagnosis.	NIL

### PRACTICALS COMPLETION REPORT

Class	Practical No.	Batch	Practical Based on paper	Remaining Practicals
B. Sc. I	<b>Practical: Zoology Lab (1): 2DSC03ZOO19</b>	B4	Animal Diversity II Genetics	NIL
B. Sc. III	<b>Practical: Practical-VII</b>	TB4	Immunology I & II	NIL

  
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**Syllabus Completion Report**

**Name of the Teacher: Dr. Tejashri C. Patil**

**Term: II**

**Class: B.Sc. III**

**Name of the Paper: Immunology II ((DSE1008F2)**

Month	Module unit	Sub unit	Remaining Units
December-2024	UNIT-II	Complement system Gell and Coombs classification of hypersensitivity	NIL
January-2025	UNIT-II	Autoimmune disease- Organ-specific autoimmune diseases (insulin-dependent diabetes mellitus, Hashimoto's thyroiditis) And systemic autoimmune diseases- (multiple sclerosis, rheumatoid arthritis)	NIL
February-2025	UNIT-II	Concept of immunodeficiency Vaccines- Properties of vaccines, active and passive immunization	NIL
March-2025	UNIT-II	Types of vaccine- attenuated, inactivated, DNA vaccines, toxoids.	NIL

**Class: B.Sc. II**

**Name of the Paper: Histology DSC03ZOO42**

Month	Module unit	Sub unit	Remaining Units
January-2025	UNIT-II	1. Introduction: Definition and Scope of Histology. 2. Definitions and Types of Tissues: Epithelial tissue, connective tissue, Nervous tissue, Muscular tissue.	NIL
February-2025	UNIT-II	3. Histological study of the alimentary canal: Oesophagus, Stomach, duodenum, rectum, liver, salivary gland	NIL
March-2025	UNIT-II	4. Histological study of the respiratory system- lugs and trachea	NIL
April-2025	UNIT-II	5. Histological study of excretory organs: kidney, juxtglomerular complex	NIL

**Class: B.Sc. I Batch B3 Practical: Based on: Animal Diversity II Zoology and Genetics**

Month	Practical	Remaining Units
January-2025	<ol style="list-style-type: none"> <li>1. Study of the following specimens with reference to morphological peculiarities and Classification up to orders: Protochordata: Amphioxus Cyclostomata: Petromyzon, Myxine</li> <li>2. Study of the Pisces with reference to morphological peculiarities and Classification up to orders: Torpedo, Exocoetus, Labeo</li> <li>3. Study of the Ambhibia with reference to morphological peculiarities and Classification up to orders: Ichthyophis, Bufo</li> <li>4. Study of the Reptiles with reference to morphological peculiarities and Classification up to orders: Draco, Chamaeleon</li> <li>5. Study of the Aves with reference to morphological peculiarities and Classification up to orders: Passer, Columba</li> <li>6. Study of the Mammals with reference to morphological peculiarities and Classification up to orders: Funambulus, Loris</li> <li>7. Characters identifying venomous and non-venomous snakes</li> </ol>	NIL
February-2025	<ol style="list-style-type: none"> <li>5. Study of the Aves with reference to morphological peculiarities and Classification up to orders: Passer, Columba</li> <li>6. Study of the Mammals with reference to morphological peculiarities and Classification up to orders: Funambulus, Loris</li> <li>7. Characters identifying venomous and non-venomous snakes</li> <li>8. Study of any six common birds from different orders with the help of photographs and keys.</li> <li>9. Mounting of placoid/cycloid scale</li> </ol>	NIL
March-2025	<p>GENETICS LAB (At least 7 experiments)</p> <ol style="list-style-type: none"> <li>1. Demonstration of Barr bodies</li> <li>2. Study of Mendelian Inheritance using suitable examples.</li> <li>3. Study of gene interactions (Non-Mendelian Inheritance)</li> <li>4. Study of Human Karyotypes (normal and abnormal)</li> </ol>	NIL
April-2025	<ol style="list-style-type: none"> <li>5. Study of polytene chromosome</li> <li>6. Study of Sex determination in Drosophila</li> <li>7. Examples based on pedigree analysis</li> <li>8. Study of genetic disorders (with images/photographs) Turner's syndrome, Patau's syndrome, Down syndrome</li> <li>9. Field visit-Museum, National park, Sea shore</li> </ol>	NIL

**Class: B.Sc. II Batch Z1 Practical: Based on: Biochemistry (DSC03ZOO41) and Histology (DSC03ZOO42)**


Month	Practical	Remaining Units
January-2025	<ol style="list-style-type: none"> <li>1. Estimation of glucose by using DNSA methods</li> <li>2. Separation of amino acids by paper chromatography</li> <li>3. Identification of Lipids by TLC</li> <li>4. Qualitative tests to identify proteins and lipids in a given sample</li> <li>5. Qualitative tests to identify lipids in a given sample</li> <li>6. Qualitative tests to identify carbohydrates in given solutions (Glucose, Fructose, Sucrose, Lactose, and Starch)</li> <li>7. Estimation of total protein in given solutions by Biuret method.</li> </ol>	NIL

February-2025	<p>8. Effect of pH on Salivary Amylase</p> <p>9. Effect of Temperatures on Salivary Amylase</p> <p>10. Detection of abnormal urine constituents from a given sample</p> <p>11. Estimation of glycogen from liver tissue</p> <p>12. Study of the different types of tissues with the help of permanent slides/photographs -epithelial tissue, connective tissue, muscular tissue, and nervous tissue.</p> <p>13. Preparation of temporary mounts of striated &amp; smooth muscle fibre.</p> <p>14. Study of human blood smear to observe different types of blood cells.</p>	NIL
March-2025	<p>15. Study of histological slides of (TS/LS) – bone and cartilage</p> <p>16. Study of histological slides of (TS/LS) -Oesophagus, Stomach, Duodenum, Rectum, liver, salivary gland.</p> <p>17. Study of histological slides of (TS/LS) -Brain, spinal cord, kidney, lungs, trachea</p> <p>18. Study of histological slides of endocrine glands (TS/LS): Pituitary, pancreas, adrenal, thyroid</p> <p>19. To study types of fixative used in histology</p> <p>20. To study types of stains</p> <p>21. Demonstration of histological staining techniques-HE techniques</p>	NIL

**Class: B.Sc. III Batch TA Practical: Based on: Practical-VII (On Paper No XIII And XIV)**

Month	Practical	Remaining Units
December-2024	<p>8. Agglutination reactions- Latex agglutination reactions.</p> <p>9. WIDAL test</p>	NIL
January- 2025	<p>10. Direct antiglobulin test (Coomb's test)</p> <p>11. Performing blood cells isolation from whole blood sample</p>	NIL
February-2025	<p>12. Identification of autoimmune disease through charts.</p> <p>13. Demonstration of a) ELISA (photograph)</p>	NIL

  
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**Syllabus Completion Report**

Name of the Teacher: Ms. P. S. Shetfalkar

Term: II

Class: B.Sc. II Minor (Theory)

Name of the Paper: Paper VIII, Insect Pest Management (MIN03ZOO42)

Month	Module unit	Subunit completed	Remaining units
December 2024	UNIT-II	Identification, Characteristics, Life cycle, Damage and Control of following insect pests. Medicinal Pests: Mosquitoes, Bedbug, Sandfly, Tse-Tse fly	Nil
January 2025	UNIT-II	Veterinary pests: Sandfly, Horsefly, Stable fly, Rat flea	Nil
February 2025	UNIT-II	Integrated Pest Management (IPM): Need, its tools and limitations. Natural Control, Applied control,	Nil
March 2025	UNIT- II	Biopesticides- Definition, types and Advantages	Nil

Class: B. Sc. III (Theory)

Name of the Paper: Paper- XVI, Aquatic Biology (DSE-1008F)

Month	Module unit	Subunit completed	Remaining units
December 2024	UNIT-I	Freshwater biology Introduction of the aquatic biomes: Freshwater ecosystem (wetlands, streams and rivers)	Nil
January 2025	UNIT-I	Origin and classification Ponds & lakes, physico-chemical characteristics: light, temperature stratification, dissolved solids, turbidity; dissolved gases (oxygen, carbon dioxide), nutrient cycling (nitrogen, phosphorus, sulphur, carbon)	Nil
February 2025	UNIT-I	Streams: Types of streams, physicochemical environment, conservation of streams, adaptation of hill stream fishes	Nil
March 2025	UNIT- I	Estuaries: Characteristics & types (based on salinity) Eutrophication	Nil

**Class: B.Sc. I (PR)**

**Practical: Zoology Lab (1): 2DSC03ZOO19 (Practical I)**

<b>Month</b>	<b>Practical completed</b>	<b>Remaining units</b>
December 2024	<ol style="list-style-type: none"><li>1. Study of the following specimens with reference to morphological peculiarities and Classification up to orders: Protochordata: Amphioxus Cyclostomata: Petromyzon, Myxine</li><li>2. Study of the Pisces with reference to morphological peculiarities and Classification up to orders: Torpedo, Exocoetus, Labeo</li><li>3. Study of the Ambhibia with reference to morphological peculiarities and Classification up to orders: Ichthyophis, Bufo</li><li>4. Study of the Reptiles with reference to morphological peculiarities and Classification up to orders: Draco, Chamaeleon</li></ol>	Nil
January 2025	<ol style="list-style-type: none"><li>5. Study of the Aves with reference to morphological peculiarities and Classification up to orders: Passer, Columba</li><li>6. Study of the Mammals with reference to morphological peculiarities and Classification up to orders: Funambulus, Loris</li><li>7. Characters identifying venomous and non-venomous snakes</li><li>8. Study of any six common birds from different orders with the help of photographs and keys.</li><li>9. Mounting of placoid/cycloid scale</li></ol>	Nil
February 2025	<ol style="list-style-type: none"><li>10. Demonstration of Barr bodies</li><li>11. Study of Mendelian Inheritance using suitable examples.</li><li>12. Study of gene interactions (Non-Mendelian Inheritance)</li><li>13. Study of Human Karyotypes (normal and abnormal)</li><li>14. Study of polytene chromosome</li></ol>	Nil
March 2025	<ol style="list-style-type: none"><li>15. Study of Sex determination in Drosophila</li><li>16. Examples based on pedigree analysis</li><li>17. Study of genetic disorders (with images/photographs) Turner's syndrome, Patau's syndrome, Down syndrome</li></ol>	Nil

**Class: B.Sc. II (PR)**

**Practical: MIN03ZOO49**

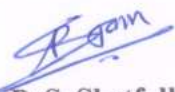
<b>Month</b>	<b>Practical completed</b>	<b>Remaining units</b>
December 2024	<ol style="list-style-type: none"><li>1. Introduction to microscope</li><li>2. Cleaning and maintenance of microscope.</li><li>3. Demonstration of different types of Microscope (Simple, Compound, Stereozoom, fluorescence )</li><li>4. Demonstration of microtomy processes</li></ol>	Nil

January 2025	5. Separation of molecules by density gradient centrifugation 6. Separation of amino acids using paper chromatography 7. Separation of amino acids using thin layer chromatography 8. To study the principles and application of the following Instruments 9. Demonstration of DNA separation by agarose gel electrophoresis.	Nil
February 2025	10. Study of morphology of insect (Cockroach/Grasshopper) 11. Study of different types of mouth parts in insect 12. Study of different types of mouth parts in insect	Nil
March 2025	13. Study of following insect pests with reference to classification, life cycle, marks of identification, nature of damage and management. a. Jowar – Stem borer b. Sugarcane – White grub c. Gram – Pod borer d. Mango – Jassids 14. Study of following stored grain pests with reference to scientific name, life cycle, marks of identification, nature of damage and management. a. Rice weevil b. Pulse beetle 15. Study of beneficial insects and mites belongs to predators and parasitoid (Any two) 16. Identification of Insect using key	Nil

**Class: B.Sc. III (PR)**

**Practical: Practical-VIII (Based on Paper No. XV & XVI)**

Month	Practical completed	Remaining units
December 2024	1. Determination alkalinity of given water sample 2. Determination total hardness of given water sample	Nil
January 2025	3. Determination of chloride from given water sample 4. Study of ecological pyramids	Nil
February 2025	5. Study of coral reefs (model) 6. Report on a visit to a Sewage treatment plant/Marine bio reserve/ Fisheries Institutes	Nil

  
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Dr. G. K. Sontakke

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**Department of Zoology**  
**Academic year: 2024-2025**

**Syllabus Completion Report**

**Name of the Teacher: Miss. Namrata Ajit Jadhav**

**Term: II- Theory**

**Class: B.Sc. I Sem.-II**

**Name of the Paper: DSC-III: Animal Diversity-II (2DSC03ZOO21)**

Month	Module Unit	Sub-Unit	Remaining Units
Dec- 2024	UNIT-1	Protochordata: General characters and Classification of Protochordata Agnatha: General characters of Agnatha and Classification of cyclostomes up to classes	NIL
Jan- 2025	UNIT-1	Pisces: General characters of Pisces, General characters of Chondrichthyes and Osteichthyes with examples; aquatic adaptations of fishes Amphibia: General features and Classification up to orders; Parental care in Amphibia	NIL
Feb-2025	UNIT- 2	Reptiles: General characters and Classification up to orders, Venomous and non-venomous snakes, Biting mechanism in snake, Types of venom and anti-venom Aves: General characters and Classification up to orders, Flight Adaptations in birds	NIL
Mar- 2025	UNIT- 2	Mammals: General characters and classification up to subclasses; Important characters of following Eutherian orders with examples, Primates, Chiroptera and Rodentia	NIL

**Class: B.Sc. II Sem.- IV (Major)**

**Name of the Paper: Paper- VIII, Histology (DEC03ZOO42)**

Month	Module Unit	Sub-Unit	Remaining Units
Dec- 2024	UNIT-II	Histological study of the reproductive organ: testes and Ovary	NIL
Jan- 2025	UNIT-II	Histology of endocrine glands – Hypothalamus, pineal, pituitary, thyroid, parathyroid, Thymus, pancreas, adrenal	NIL
Feb- 2025	UNIT- II	Histology of Circulatory system – Heart, Arteries, Vein and capillary	NIL

Mar-2025	UNIT-II	Histology of Bone, Cartilage, Ligament	NIL
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**Class: B.Sc. I Sem.-II (PR) (Batch- B6)**

**Practical: DSC- PR-II : 2DSC03ZOO29**

**Practicals based on Animal Diversity- II (2DSC03ZOO21) and Genetics (2DSC03ZOO22)**

Month	Practical	Remaining Units
Dec-2024	<ol style="list-style-type: none"> <li>1. Study of the following specimens with reference to morphological peculiarities and Classification up to orders: Protochordata: Amphioxus Cyclostomata: <i>Petromyzon, Myxine</i></li> <li>2. Study of the Pisces with reference to morphological peculiarities and Classification up to orders: <i>Torpedo, Exocoetus, Labeo</i></li> <li>3. Study of the Ambhibia with reference to morphological peculiarities and Classification up to orders: <i>Ichthyophis, Bufo</i></li> <li>4. Study of the Reptiles with reference to morphological peculiarities and Classification up to orders: <i>Draco, Chamaeleon</i></li> </ol>	NIL
Jan-2025	<ol style="list-style-type: none"> <li>5. Study of the Aves with reference to morphological peculiarities and Classification up to orders: <i>Passer, Columba</i></li> <li>6. Study of the Mammals with reference to morphological peculiarities and Classification up to orders: <i>Funambulus, Loris</i></li> <li>7. Characters identifying venomous and non-venomous snakes</li> <li>8. Study of any six common birds from different orders with the help of photographs and keys.</li> <li>9. Mounting of placoid/cycloid scale</li> </ol>	NIL
Feb-2025	<ol style="list-style-type: none"> <li>1. Demonstration of Barr bodies</li> <li>2. Study of Mendelian Inheritance using suitable examples.</li> <li>3. Study of gene interactions (Non-Mendelian Inheritance)</li> <li>4. Study of Human Karyotypes (normal and abnormal)</li> </ol>	NIL
Mar-2025	<ol style="list-style-type: none"> <li>5. Study of polytene chromosome</li> <li>6. Study of Sex determination in <i>Drosophila</i></li> <li>7. Examples based on pedigree analysis</li> <li>8. Study of genetic disorders (with images/photographs) Turner's syndrome, Patau's syndrome, Down syndrome</li> </ol>	NIL

**Class: B.Sc. II Sem.- IV (PR) (Minor, Batch- ZM3)**

**Paper- VII & VIII ZOOLOGY LAB (4): DSC03ZOO49 (Practical IV)**

**Practical based on Principles of Biochemistry (DSC03ZOO41) and Histology (DSC03ZOO42)**


Month	Practical	Remaining Units
Dec-	1. Introduction to microscope	

2024	2. Cleaning and maintenance of microscope. 3. Demonstration of different types of Microscope (Simple, Compound, Stereozoom, fluorescence)	NIL
Jan-2025	4. Demonstration of microtomy processes 5. Separation of molecules by density gradient centrifugation 6. Separation of amino acids using paper chromatography 7. Separation of amino acids using thin layer chromatography	NIL
Feb-2025	8. To study the Principles and application of the following Instruments.a) Incubator b) Spectrophotometer c) Colorimeter d) Cooling Centrifuge e) Rotary microtome f) Oven 9. Demonstration of DNA separation by agarose gel electrophoresis. 10. Study of morphology of insect (Cockroach/Grasshopper) 11. Study of different types of mouth parts in insect	NIL
Mar-2024	12. Technique of collection and preservation of insect pests a. Wet preservation b. Dry preservation 13. Study of following insect pests with reference to classification, life cycle, marks of identification, nature of damage and management. a. Jowar – Stem borer b. Sugarcane – White grub c. Gram – Pod borer d. Mango – Jassids 14. Study of following stored grain pests with reference to scientific name, life cycle, marks of identification, nature of damage and management. a. Rice weevil b. Pulse beetle 15. Study of beneficial insects and mites belongs to predators and parasitoid (Any two)	NIL

**Class: B.Sc. III, (Batch- TB2), PRACTICAL-VI (BASED ON PAPER NO XI AND XII)**

Month	Practical	Remaining Units
Dec-2024	7. Demonstration of culture of early chick embryo in vitro 8. <i>Drosophila</i> culture: Cultivation, maintenance	NIL
Jan-2025	9. Study of larval developmental stages in <i>Drosophila</i> 10. Identification of fish developmental stages- Egg, larva, juvenile (fry, fingerlings and adult)	NIL
Feb-2025	11. Preparation of histological slides – Ovaries/ testes 12. Histology of male accessory reproductive glands in human - Prostate gland, bulbourethral glands (permanent slides/microphotographs)	NIL

  
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**Department of Zoology**

**Academic year: 2024-2025**

**Syllabus Completion Report**

**Name of the Teacher: Ms. Pratiksha R. Gaikwad**

**Term: II**

**Class: B.Sc. II, Sem-III (Minor)**

**Name of the Paper: VIII-Tools and Techniques in Biology (MIN03Z0041)**

Month	Module unit	Sub unit	Remaining Units
Dec- 2024	UNIT- I	Basics of Microscopy- Definition, Magnification and Resolving Power	NIL
Jan- 2025	UNIT- I	Principle and Application of Microscopy- Light (bright-field,	NIL
Feb-2025	UNIT- I	dark-field and phase contrast), Fluorescence Microscope	NIL
Mar- 2025	UNIT- I	Electron Microscope (SEM and TEM)	NIL

**Class: B. Sc. III, Semester: VI (Theory)**

**Name of the Paper: XV-Ecology and Toxicology (ZOOLOGY-DSE -1008F3)**

Month	Module unit	Sub unit	Remaining Units
Dec- 2024	UNIT-II	Definition, history, scope & divisions of toxicology.	NIL
Jan- 2025	UNIT-II	Brief idea of- Dose-effect and dose-response relationship- acute toxicity, sub-acute toxicity, chronic toxicity, organ specific toxicity (neurotoxicity, hepatotoxicity, nephrotoxicity)	NIL
Feb-2025	UNIT-II	Heavy metal Toxicity- Mercury, lead, cadmium.	NIL
Mar- 2025	UNIT- II	Classification of toxic agents- Natural toxins, animal toxins, plant toxins, food toxins, and chemical toxins.	NIL

**Class: B.Sc. I (PR) (Batch: B9)**

**Practical: 2DSC03ZOO29 (Practical II)**

**Practicals based on Animal diversity II (DSC03ZOO21) and Genetics (DSC03ZOO22)**

Month	Practical	Remaining Practicals
Dec- 2024	1) Study of the following specimens with reference to morphological peculiarities and Classification up to orders:	NIL

	<p>Protochordata: Amphioxus Cyclostomata: Petromyzon, Myxine</p> <p>2) Study of the Pisces with reference to morphological peculiarities and Classification up to orders: Torpedo, Exocoetus, Labeo</p> <p>3) Study of the Ambhibia with reference to morphological peculiarities and Classification up to orders: Ichthyophis, Bufo</p> <p>4) Study of the Reptiles with reference to morphological peculiarities and Classification up to orders: Draco, Chamaeleon</p>	
Jan- 2025	<p>1) Study of the Aves with reference to morphological peculiarities and Classification up to orders: Passer, Columba</p> <p>2) Study of the Mammals with reference to morphological peculiarities and Classification up to orders: Funambulus, Loris</p> <p>3) Characters identifying venomous and non-venomous snakes</p> <p>4) Study of any six common birds from different orders with the help of photographs and keys.</p>	NIL
Feb-2025	<p>1) Mounting of placoid/cycloid scale</p> <p>2) Demonstration of Barr bodies</p> <p>3) Study of Mendelian Inheritance using suitable examples.</p> <p>4) Study of gene interactions (Non-Mendelian Inheritance)</p>	NIL
Mar- 2025	<p>1) Study of Human Karyotypes (normal and abnormal)</p> <p>2) Study of polytene chromosome</p> <p>3) Study of Sex determination in Drosophila</p> <p>4) Examples based on pedigree analysis</p> <p>5) Study of genetic disorders (with images/photographs) Turner's syndrome, Patau's syndrome, Down syndrome</p>	NIL

**Class: B.Sc. II (Minor Batch: ZM1, ZM5)**

**Practical: MIN03ZOO49 (Practical IV)**

**Practicals based on Tools and Techniques in Biology (MIN03Z0041) and Insect Pest Management (MIN03ZOO42)**

Month	Practical	Remaining Practicals
Dec- 2024	<p>1) Introduction to microscope</p> <p>2) Cleaning and maintenance of microscope.</p> <p>3) Demonstration of different types of Microscopes (Simple, Compound, Stereozoom, fluorescence)</p>	NIL
Jan- 2025	<p>1) Demonstration of microtomy processes</p> <p>2) Separation of molecules by density gradient centrifugation</p> <p>3) Separation of amino acids using paper chromatography</p> <p>4) Separation of amino acids using thin layer chromatography</p>	NIL

Feb-2025	<ol style="list-style-type: none"> <li>1) To study the principles and application of the following Instruments. a) Incubator b) Spectrophotometer c) Colorimeter d) Cooling Centrifuge e) Rotary microtome f) Oven</li> <li>2) Demonstration of DNA separation by agarose gel electrophoresis.</li> <li>3) Study of morphology of insect (Cockroach/Grasshopper)</li> <li>4) Study of different types of mouth parts in insect</li> <li>5) Technique of collection and preservation of insect pests a. Wet preservation b. Dry preservation</li> </ol>	NIL
Mar- 2024	<ol style="list-style-type: none"> <li>6) Study of following insect pests with reference to classification, life cycle, marks of identification, nature of damage and management. a. Jowar – Stem borer b. Sugarcane – White grub c. Gram – Pod borer d. Mango – Jassids</li> <li>7) Study of following stored grain pests with reference to scientific name, life cycle, marks of identification, nature of damage and management. 28 a. Rice weevil b. Pulse beetle</li> <li>8) Study of beneficial insects and mites belongs to predators and parasitoid (Any two)</li> <li>9) Collection, preservation and submission of insect pests (Any two)</li> <li>10) Identification of Insect using key</li> <li>11) Field visit and observation of insects, submission of report with photographs (any five insect)</li> </ol>	NIL

*P. R. Gaikwad*

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