DEPARTMENT OF ZOOLOGY

COURSE OUTCOMES

SEMESTER – I

PAPER-I ANIMAL DIVERSITY - BIOLOGY OF NON-CHORDATES

THEORY

CO#	Course Outcome
CO1	Classify different animals using general taxonomic rules. (K4)
CO2	Classify Protozoa to Coelenterate with taxonomic keys. (K4)
CO3	List out the general characters and explain evolutionary significance of Ctenophore. (K3)
CO4	Classify phylum Platyhelminthes to Annelida phylum using examples from parasitic adaptation and vermin composting. (K4)
CO5	Illustrate phylum Arthropoda to Mollusca using examples and importance of insects and Molluscans. (K4)
CO6	Differentiate Echinodermata to Hemichordate with suitable examples and larval stages in relation to the phylogeny. (K4)

PRACTCAL

CO#	Course Outcome
CO1	Illustrate the importance of preservation of museum specimens. (K3)
CO2	Categorize animals based on special identifying characters. (K4)
CO3	Explain different organ systems through demo or virtual dissections. (K3)
CO4	Diagram a neat labeled record of identified museum specimens. (K4)

SEMESTER – II

PAPER-II ANIMAL DIVERSITY - BIOLOGY OF NON-CHORDATES

THEORY

CO#	Course Outcome
CO1	Describe general taxonomic rules on animal classification of chordates. (K2)
CO2	Classify Protochordata to Mammalian with taxonomic keys. (K4)
CO3	Illustrate Reptiles with specific structural adaptations. (K4)
CO4	Explain mammals with specific structural adaptations. (K3)
CO5	Illustrate the significance of dentition and evolutionary significance. (K4)
CO6	Illustrate the origin and evolutionary relationship of different phyla from Protochordata to Mammalian. (K4)

PRACTCAL

CO#	Course Outcome
CO1	Categorize taxidermy and other methods of preservation of chordates. (K4)
CO2	Evaluate chordates based on special identifying characters. (K5)
CO3	Demonstrate internal Anatomy of animals through demo or virtual dissections, thus directing the student for “Empathy towards the fellow living beings”. (K3)
CO4	Diagram a neat, labeled record of identified museum specimens. (K4)

SEMESTER – III

PAPER-III CELL BIOLOGY, GENETICS, MOLECULAR BIOLOY AND EVOLUTION

THEORY

CO#	Course Outcome
CO1	Describe the basic unit of the living organisms and differentiate the organisms by their cell structure. (K2)
CO2	Assess the structure and function of plasma membrane and different cell organelles of eukaryotic cell. (K5)
CO3	Demonstrate the history of origin of branch of genetics gain knowledge on heredity interaction of genes, various types of inheritance patterns existing in animals. (K3)
CO4	Illustrate various aspects of genetics involved in sex-determination human karyotyping and mutations of chromosomes resulting in various disorder. (K3)
CO5	Explain the central dogma of molecular biology and flow of genetic information from DNA to proteins. (K3)
CO6	Illustrate the principles and forces of evolution of life on earth, the process of evolution of new species and apply the same to develop new and advanced varieties of animals for the benefit of the society. (K4)

PRACTCAL

CO#	Course Outcome
CO1	Illustrate skill enhancement in the usage of laboratory microscope hands-on experience of different phases of cell division by experimentation. (K4)
CO2	Develop skills on human Karyo typing and identification of chromosomal disorders. (K3)
CO3	Apply the basic concept of inheritance for applied research. (K3)
CO4	Develop familiar with phylogeny and geological history of origin & evolution of animals. (K3)

SEMESTER – IV

PAPER-IV ANIMAL PHYSIOLOGY, CELLULAR METABOLISM AND EMBRYOLOGY

THEORY

CO#	Course Outcome
CO1	Illustrate the functions of important animal physiological systems including digestion,cardio respiratory and renal systems. (K4)
CO2	Explain the muscular system and the neuro endocrine regulation of animal growth development and metabolism with a special knowledge of hormonal control of human reproduction. (K3)
CO3	Explain the structure classification and chemistry of bio molecules and enzymes responsible for sustenance of life in living organisms. (K3)
CO4	Demonstrate the basic metabolic activities pertaining to the catabolism and anabolism of various bio-molecules. (K3)
CO5	Analyze the key events in The early embryonic development starting from the formation of gametes up to gastrulation formation of primary germ layer. (K4)

PRACTCAL

CO#	Course Outcome
CO1	Report of an organ system with histological structure. (K3)
CO2	Assess human health based on the information of composition of blood cells. (K5)
CO3	Demonstrate enzyme activity *in vitro* . (K3)
CO4	Analyze various bio-molecules of tissues by simple colorimetric methods and also quantitative methods. (K3)

SEMESTER – V

PAPER-V ANIMAL BIOTECHNOLOGY

THEORY

CO#	Course Outcome
CO1	Illustrate the applications of biotechnology in the fields of industry and agriculture including animal cell-tissue culture stem cell technology and genetic engineering. (K3)
CO2	Explain the tools and techniques of animal biotechnology. (K3)
CO3	Demonstrate hybridoma technology and write its applications. (K3)
CO4	Explain reproductive technologies and transgenic animals in animal biotechnology. (K2)(K3)
CO5	Explain fermentation and its types. (K3)
CO6	Illustrate monoculture in fishes and polyploidy in fishes. (K3)

PRACTCAL

CO#	Course Outcome
CO1	Demonstrate basic laboratory skills necessary for Biotechnology research. (K3)
CO2	Demonstrate the application of the lab techniques for taking up research in higher studies. (K3)
CO3	Estimate DNA Quantification using agarose gel electrophoresis. (K4)
CO4	Report DNA Amplification by PCR technique. (K3)

SEMESTER – V

PAPER-VI ANIMAL HUSBANDARY

THEORY

CO#	Course Outcome
CO1	Demonstrate the Principles of Poultry housing and management of Chicks, growers and layers. (K3)
CO2	Explain different stages of layers and broilers. (K3)
CO3	Explain about selection care and handling of hatching eggs. (K3)
CO4	Classify Indian cattle breeds, exotic breeds and Indian buffalo breeds. (K4)
CO5	Explain about housing of dairy animals, conventional dairy barn and weaning of calf. (K2)
CO6	Illustrate care and management of calf, heifer , milk animal, dry and pregnant animals, bulls and bullocks. (K3)

PRACTCAL

CO#	Course Outcome
CO1	Demonstrate various breeds of layers and broilers (Photographs). (K3)
CO2	Analyze disease causing organisms in Poultry birds. (K4)
CO3	Demonstrate the anatomy of the poultry bird by way of dissecting a bird. (K3)
CO4	Demonstrate various activities carried out in a dairy farm. (K3)

SEMESTER – VI

PAPER-VI IMMUNOLOGY

THEORY

CO#	Course Outcome
CO1	Classify the organs of immune system types of immunity cells and organs of immunity. (K4)
CO2	Demonstrate Immunological response to how it is triggered (antigens) and regulated (antibodies). (K3)
CO3	Distinguish between exogenous and endogenous pathways of antigen presentation. (K5)
CO4	Illustrate cell cultures- primary and secondary. (K3)
CO5	Explain various types of hypersensitivity and vaccines. (K3)
CO6	Illustrate about monoclonal antibodies. (K4)

PRACTCAL

CO#	Course Outcome
CO1	Demonstrate immunological techniques vis-a-vis theory taught in the classroom. (K4)
CO2	Interpret the theoretical and practical knowledge of immunity with the outer world for the development of a healthier life. (K3)
CO3	Demonstrate lymphoid organs. (K4)
CO4	Categorize different blood groups. (K4)

SEMESTER – VI

PAPER- CLUSTER - I PRINCIPLES OF AQUACULTURE

THEORY

CO#	Course Outcome
CO1	Explain the concept of Principles of Aquaculture. (K4)
CO2	Distinguish the concept of monoculture , composite culture, mono sex culture and integrated fish farming. (K3)
CO3	Explain ponds, raceways , cages , pens, rafts and water re-circulating system. (K5)
CO4	Illustrate the design and construction of fish and shrimp farms. (K3)
CO5	Explain about the management of carp culture ponds. (K3)
CO6	Demonstrate the Culture of shrimp, pearl oysters , sea weeds and ornamental fishes. (K4)

PRACTCAL

CO#	Course Outcome
CO1	Distinguish between cultivable and edible fishes. (K5)
CO2	Differentiate Aquarium fishes from other fishes. (K4)
CO3	Demonstrate fish and shrimp diseases. (K3)
CO4	Estimate water quality parameters such as temperature , P^H, O_2, CO_2 etc., in pond water sample. (K4)

SEMESTER – VI

PAPER- CLUSTER - II AQUACULTURE MANAGEMENT

THEORY

CO#	Course Outcome
CO1	Compare bundh breeding and induced breeding of carp. (K2)
CO2	Estimate water quality parameters and soil charactersticks for fish and shrimp culture. (K4)
CO3	Distinguish different types of foods and feeds such as supplementary feeds, principal foods and artificial diets, feed additives and preservatives. (K4)
CO4	Evaluate principles of disease diagnosis and health management. (K5)
CO5	Analyze fish marketing methods and fishery training in India. (K4)
CO6	Explain genetic improvement of fish stocks, gynogenesis androgenic, transgenic fish and cryo preservation of gametes. (K3)

PRACTCAL

CO#	Course Outcome
CO1	Demonstrate live food Organisms. (K3)
CO2	Estimate the composition of aquaculture feeds- Proteins, Carbohydrates and Lipids. (K4)
CO3	Analyze artificial and natural gut food intake. (K4)
CO4	Prepare flow charts, excersize the identification of hazards and procedures in processing of fish. (K3)

SEMESTER – VI

PAPER- CLUSTER - III POST HARVEST TECHNOLOGY

THEORY

CO#	Course Outcome
CO1	Explain the concept of fish preservation, cleaning , lowering of temperature, raising of temperature and use of salt. (K3)
CO2	Illustrate the methods of fish preservation. (K4)
CO3	Explain processing of fish and preservation of fish and fish by products. (K3)
CO4	Demonstrate sea weed products such as agar, algil and carrageen. (K3)
CO5	Interpret quality control of fish and fishery products. (K3)
CO6	Explain about sea food quality assurance and systems and maintain national and international standards. (K3)

PRACTCAL

CO#	Course Outcome
CO1	Report the fish farms project after visiting. (K3)
CO2	Report the project of a feed manufacturing unit after visiting. (K3)
CO3	Report the project of a shrimp hatchery / shrimp farm after visiting. (K3)
CO4	Report the project of shrimp processing unit after visiting. (K3)