PROGRAM OUTCOME
PROGRAM SPECIFIC OUTCOME AND COURSE OUTCOME

DEPARTMENT OF ZOOLOGY

BIDHAN CHANDRA COLLEGE

ASANSOL - 713304

PROGRAM OUTCOME

Students after three years of graduation with a Bachelor of Science (B.Sc.) degree will be broadly educated, versatile and innovative to drive scientific and societal advancement through technological innovation. They will be able to apply their knowledge in appropriate discipline and also be able to understand professional, ethical, legal, security and social issues and responsibilities for their profession and life.

The course will provide quality education offering skill based programs and motivate the students for self-employment in applied branches of science. It also teaches to inculcate the value based education and entrepreneurial skills among the students as well as create awareness on environmental issues through various activities

PROGRAM SPECIFIC OUTCOME

After successfully completing B. Sc. (Zoology) Programme students will be able to:

1. Acquire the skills in handling scientific instruments, planning and performing in laboratory experiments.

2. Understand the nature and basic concepts of cell biology, genetics, taxonomy, physiology, ecology and applied Zoology.

3. Analyse the relationships among animals with their ecosystems.

4. Understand and be aware of relevant theories, paradigms, concepts and principles of zoology.

5. Apply the knowledge of Zoology to understand the complex life processes and phenomena.

7. Understand the applications of Zoology in Agriculture, Medicine and daily life.

8. Gains knowledge about research methodologies, effective communication and skills of problem solving methods.

9. Recognize the need for, and have the preparation and ability to engage in independent and life-long learning.

10. Contributes the knowledge for Nation building.

COURSE OUTCOME
Zoology Honours

Semester I

Core course I (Basic concept of Taxonomy & Non- chordates I: Protista to Pseudocoelomates)

Theory:

After successfully completing this paper, students will be able to:

1. Get the knowledge on basics of animal classification, animal taxonomy and zoological nomenclature.
2. Describe the general characteristics, classification upto classes of protozoa along with some parazoa, metazoan, porifera, Cnidaria & Ctenophora, Platyhelminthes and nematohelminthes.
3. Demonstrate anatomical and physiological attributes as well as interactions of some type animals from each phylum and why these have led to their success.
4. Explain parasitic adaptations in helminthes.

Practical:

After successfully completing this paper, students will be able to:

1. Gain first-hand knowledge of studying protozoans, their reproduction and hay culture in protozoa.
2. Explain diversity of protists by practical studying of colonization to any substance.
3. Get practical knowledge of identifying organisms by applying scheme of classification.
5. Students must do practical study on the life cycle of endoparasites by taking either microscopic slides or microphotographs.
6 Explain the life cycle of some parasitic platyhelminthes either by microscopic slides or microphotographs.
7. Construct dichotomous key by taking taxonomic data.

Core course II (Principles of Ecology)

Theory:

After successfully completing this paper, students will be able to:

1. Get knowledge about different level of organization and effect of temperature and light on environment.

2. Get primary idea about population, population characteristics, name of the factors that influence population density, population growth model and population regulation by prey-predator relationship
3. Explain characteristics of community, ecotone and edge effect and ecological succession
4. Gather knowledge about different types of ecosystems, energy flow model, ecological efficiencies and nutrient cycle
5. Get acquainted with the wildlife animals and their conservation process (protection laws and management strategies).

Practical:

1. **Get fundamental knowledge about quadrates, their size and frequency of nested quadrates**
2. **Get training on determination of population density in a hypothetical community by quadrate method**
3. **Gather knowledge on aquatic ecosystems by the determination of planktons, turbidity, pH, O_2 and CO_2**
4. **Estimate the primary productivity by light & dark bottle method.**
5. **Field visits to various ecological areas like sea-shore, zoological gardens or wild life sanctuary allowed students to prepare reports on them.**

Semester II

Core course III (Non- chordates II: coelomates)

Theory:

After successfully completing this paper, students will be able to:
1. Know the classification of Non-chordates (coelomates) along with studies on various physiological functions and interactions of non-chordate organisms with type specimens.
2. Get the knowledge about the evolution of coelom and metamerism.

Practical:

After successfully completing this paper, students will be able to:
1. Gain first-hand knowledge about identification of non-chordate Annelid, Arthropod, Onychophora, Mollusc and Echinodermate specimens (fresh and preserved) based on morphological features.
2. Explain the digestive system and nephridia of earthworm.
3. Describe the reproductive system of *Periplaneta* and mouthparts of few common insects through dissection.

Core course IV (Animal physiology)

Theory:

After successfully completing this paper, students will be able to:

1. Gather knowledge about different types of tissues, their structure and function.

2. Students are taught the detailed concepts of digestion, respiration, excretion, the functioning of nerves and muscles of animals.

4. Gather knowledge about heart, cardiac cycle, cardiac impulse and transportation of O_2 and CO_2.

Practical:

After successfully completing this paper, students will be able to:

1. **Demonstrate the unconditioned reflex action.**
2. **Prepare temporary mounts like squamous epithelium, striated muscle fibres and nerve cell of fish.**
3. **Identify T.S of histological organ by permanent slides.**
4. **Gain skill about histological slide preparation, staining and mounting of five tissues of goat.**
5. **Students get knowledge about determination of ABO blood group and quantitative analysis of blood cells.**
6. **Students get acquainted with the haemocytometer for enumeration of WBC and RBC.**
7. **Students get acquainted with the Sahli's haemoglobinometer for estimation of haemoglobin.**

Semester III

Core course V (Diversity of chordates)

Theory:

After successfully completing this paper, students will be able to:

1. Get the preliminary knowledge about lower chordates, their metamorphosis and identify their various larval stages and development in invertebrate groups

2. Learn about the characteristics, classification & of Agnatha, Pisces, Amphibia, Aves and Mammals.

3. Describe parental care, osmoregulation of Pisces.

4. Get knowledge about parental care of reptiles along with affinities of *Sphenodon*.

5. Explain biting apparatus & it's mechanism in snakes.

6. Explain migration & flight mechanism in Birds.

7. Describe with their affinities of prototheria & adaptive radiation.

8. Gather knowledge about distribution of fauna in different zoogeographical realms.

Practical:

After successfully completing this paper, students will be able to:

1. Know about lower chordates.

2. Gain practical knowledge of identifying Agnatha.

3. Identify Fish specimens, dissect and mount them for practical knowledge.

4. Identify the specimens of Amphibians, Reptiles, Aves and Mammals for practical knowledge.

6. Explain the types of aves exoskeleton and cranial nerves and pecten through dissection of fowl head.

Core course VI (Comparative anatomy of vertebrates)

Theory:

After successfully completing this paper, students will be able to:

1. Understand the comparative anatomy of integumentary, skeletal, digestive and respiratory systems as well as heart, kidney, nerves, brain, eyes of different vertebrates.

Practical:

After successfully completing this paper, students will be able to:

1. Identify bones of some lower to higher vertebrate animals.

2. Compare between the digestive systems of Tilapia and *Channa* fish.

3. Get knowledge about urinogenital systems of some vertebrates.

4. Demonstrate the modifications of vertebrate integumentary derivatives.

Core course VII (Fundamentals of biochemistry)

Theory:

After successfully completing this paper, students will be able to:

1. Get primary idea about structure, types and function of three major biomolecules i.e. carbohydrate, protein and lipid.

2. Gather knowledge about nomenclature, classification, inhibition of different types of enzymes.

3. Explain the pathways of glycolysis, citric acid cycle, phosphate pentose pathway, gluconeogenesis, glycogenolysis and glycogenesis

4. Get knowledge about transmination, deamination and urea cycle

5. Get a clear concept on beta and omega oxidation of saturated fatty acids and biosynthesis of palmitic acid and ketogenesis.

Practical:

After successfully completing this paper, students will be able to:

1. **Get first-hand training on qualitative tests of functional groups in carbohydrates, proteins and lipids**
2. **Get knowledge about mechanism of paper chromatography.**
3. **Gather practical idea on the action of salivary amylase under optimum condition.**
4. **Students gather idea on the effect of pH, temperature and inhibitors on the action of salivary amylase.**
5. **Separate given proteins by Lowry method.**

Skill enhancement course: SEC 1 (Apiculture)

After successfully completing this paper, students will be able to:

1. Define the concepts of the applied subject like Sericulture.
2. Identify different species and casts of honeybees
3. Explain the tools and techniques used in apiculture
4. Explain the important pests of apiculture and also gain knowledge about various disease and their impact on human, their control and preventive measures.
5. Know the economic importance of honeybee.
6. Illustrate management and entrepreneurship of the apiary units.

Semester IV

Core course VIII (Cell biology)

Theory:

After successfully completing this paper, students will be able to:

1. Describe the composition, structure and functions of the plasma membrane, transport mechanisms, desmosomes & various cell mechanisms.
2. Describe the structure and functions of cell organelles.
3. Explain the structure and functions of the nucleus and its components.
4. Describe the three primary components of the cell's cytoskeleton .
3. Identify the cell division phases, MTOC, cell cycle & it's regulation.
4. Explain the cell signaling pathway.

Practical:

After successfully completing this paper, students will be able to:

1. Get practical knowledge about the structure of polytene chromosome, mitotic and meiotic cell division from biological specimens.

4. Prepare permanent slides of human Barr body.

5. Prepare permanent slides to demonstrate DNA, RNA & proteins through some authentic techniques.

Core course IX (Parasitology and immunology)

Theory:

After successfully completing this paper, students will be able to:

1. Define the basic terms in parasitology.
2. Explain animal associations and their types and host parasite relationship.
3. Illustrate transmission routes of animal and zoonotic parasites.
4. Discuss the life cycle, pathogenicity, diagnosis, prophylaxis, treatment and importance of some major parasites.
5. Know about immune system, cytokines and MHC molecules.
6. Discuss the different pathways of antigen processing and presentation.
7. Describe hypersensitivity.
8. Gather knowledge on types of immunity, antigen-antibodies and their properties. Also know about Hybridoma technology: monoclonal antibody production.

Practical:

After successfully completing this paper, students will be able to:

1. Identify the life cycle stages of few parasites.
2. Explain the pathogenicity and morphology of few ecto-parasites.
3. Gain some preliminary knowledge about some poultry parasites.
4. Identify the organs by studying the histological slides.
5. Prepare blood smear and identify the various cells.
6. Perform Ouchterlony's double immuno-diffusion method.
7. Demonstrate the process of ELISA.

Core course X (Biochemistry of metabolic processes)

Theory:

After successfully completing this paper, students will be able to:

1. Get overview knowledge about catabolism *vs* anabolism, stages of catabolism, compartmentalization of metabolic pathways, intermediately metabolism and regulatory mechanisms

2. Describe different events of Carbohydrate and Lipid metabolism, Protein metabolism and catabolism of amino acids: transmination, deamination and urea cycle.
3. Gather knowledge about inhibitors and un-couplers of Electron Transport Chain.

Practical:

After successfully completing this paper, students will be able to:

1. Get the practical training on protein separation by Lowry method, SGOT/SGPT detection in serum/tissue.
2. Understand the enzymatic activity of Trypsin and Lipase and biological oxidation (SDH) from goat liver.
3. Perform the acid and alkaline phosphatises assay from tissue.
4. Trace the labelled C atoms of Acetyl- CoA till they evolve as CO_2 in the TCA cycle.

Skill enhancement course: SEC 2 (Sericulture)

After successfully completing this paper, students will be able to:
1. Identify different species and casts of silkworm.
2. Describe the life cycle and silk gland of silk worms.
3. Explain the tools and techniques used in sericulture.
4. Explain the important pests and diseases of sericulture and their prevention.
5. Know the economic importance of silkworm and silk industry in India.
6. Illustrate management of the sericulture units, study about enterpreneurship and skills of development.

Semester V

Core course XI (Molecular biology)

Theory:

After successfully completing this paper, students will be able to:
1. Get primary idea about structure of RNA and Watson Crick model of DNA
2. Illustrate the mechanism of replication, transcription and translation of prokaryotes and Eukaryotes
3. Justify the post transcriptional and post translational modifications and processing of eukaryotic RNA, splicing mechanism, exon shuffling, RNA editing and processing of hn RNA.
4. Get brief idea about gene regulation prokaryotes and Eukaryotes.
5. Gets knowledge about mismatch repair, pyrimidine dimerization, protooncogene activation, tumor suppressor genes, Riboswitches, RNA interference, miRNA and siRNA.

Practical:

After successfully completing this paper, students will be able to:

1. **Gain idea on isolation of DNA from fish blood.**
2. **Obtain first-hand training of quantitative estimation of DNA using colorimeter and RNA using orcinol reaction.**
3. **Interpret DNA replication, transcription and split genes through electron micrographs.**

Core course XII (Developmental Biology)

Theory:

After successfully completing this paper, students will be able to:

1. Get some basic concepts of development, cell- cell interaction, growth, gene expression, cytoplasmic determinants and asymmetric cell division.

2. Describe the key events in early, late and post systematic embryological development.

3. Impart the knowledge about developmental processes of different animals along with teratology.

4. Gather knowledge about *In vitro* fertilization, ESC and Amniocentesis.

Practical:

After successfully completing this paper, students will be able to:

1. Identify embryological developmental stages of frog through permanent slides.

2. Describe the chick development up to 96 hours of incubation and extra embryonic membranes through permanent slides.

3. Gain the idea of *Drosophila* life cycle stages through stock culture.

4. Gain skill to prepare different stages of embryos of chick and *Drosophila* life stages.

Discipline centric elective courses: DSE 1 (Animal behaviour and cronobiology)

Theory:

After successfully completing this paper, students will be able to:

1. Get brief profile of Karl Von Frish, Ivan Pavlov, Konard Lorenz, Niko Tinbergen and Proximate and ultimate cause of behaviour.

2. Obtain knowledge about Orientation, Reflexes, Instinct, Associative learning, classical and Operant conditioning, habituation and imprinting

3. Explain about social behaviour like Altruism, foraging, waggle dance, sexual behaviour like asymmetry of sex, sexual dimorphism, intra sexual and inter sexual selection and sexual conflict in parental care.

4. Describe different types of biological rhythms and adaptive significance of biological clocks.

Practical:

After successfully completing this paper, students will be able to:

1. **Describe nests and nesting habits of social insects, geotaxis behaviour in earthworm and circadian function in human.**
2. **Study behavioural activities of animals and make reports on them through tours.**
3. **Gain the idea to prepare kinematic diagram of dog and duck.**

Discipline centric elective courses: DSE 2 (Biology of Insecta)

Theory:

After successfully completing this paper, students will be able to:

1. Know about general features, distribution, classification and various morphological features of insects.

3. Acquire knowledge about structure, physiology & metamorphosis of insects.

5. Gather knowledge about life cycle and the social organization of insects with examples.

6. Know about insect plant interaction and insect vectors.

Practical:

After successfully completing this paper, students will be able to:

1. Explain about various types of mouth parts, wings and venation found in insects.

3. Get first-hand practical knowledge of collection, identification & preservation of insect.

4. Get practical knowledge of morphology of different casts of *Apis* sp.

5. Gain idea about any 3 types of insect pest and beneficial insects.

7. Make a field report on insect diversity.

Semester VI

Core course XIII (Principle of genetics)

Theory:

After successfully completing this paper, students will be able to:

1. Gather knowledge about principle of inheritance, incomplete dominance, co dominance, multiple alleles, Epistatis, Pleiotropy,sex limited traits and sex influenced traits.

2. Describe molecular mechanism of crossing over, models of recombination, gene mapping and somatic cell hybridization.
3. Get idea about gene mutation, chromosomal aberration, mutagenesis, CLB method, Muller method, attach X method
4. Explain about chromosomal mechanism of *Drosophila* and Man
5. Illustrate extra chromosomal inheritance of *Chlamydomonas*, *Saccharomyces*, *Paramoecium* and maternal effects.
6. Get primary idea about polygenic inheritance with suitable examples and simple numerical based on it.
7. Get detailed idea on conjugation, transformation, and transduction and complementation test in Bacteriophage, transposon in Bacteria, Drosophila, maize and human.

Practical:

After successfully completing this paper, students will be able to:

1. **Demonstrate Mendelian Laws and gene interactions**
2. **Get comprehensive knowledge on chi square analysis.**
3. **Determine linkage maps based on data from conjugation, transformation and transduction and linkage maps based on data from Drosophila crosses.**
4. **Explain human karyotype.**
5. **Get grasp on Pedigree analysis.**

Core course XIV (Evolutionary Biology)

Theory:

After successfully completing this paper, students will be able to:
1. Gain fundamental knowledge about theories and nature of evolution.
2. Develops knowledge regarding various evolutionary concepts.
3. Illustrate the presence of organisms at various geological time scale.
4. Describe the evidences of evolution through fossil records
5. Explain the theories of horse evolution, molecular evolution.
6. Explain population genetics.
7. Explain the evidences of evolution and gather knowledge in different micro evolutionary changes, Species concept, speciation, extinctions of species.
8. Describe evolution of man and the concept of molecular analysis of human origin.
9. Apply the knowledge in construction and interpretation of phylogenetic trees.

Practical:

After successfully completing this paper, students will be able to:
1. Identify the fossil types in animals and thoroughly describe homology and analogy.
2. Illustrate the application of Hardy –Weinberg law by chi square analysis.

3. Demonstrate natural selection and genetic drift.
4. Construct huge graphs regarding human height/weight, age/sex with a clear interpretation.
5. Apply the knowledge in construction and interpretation of phylogenetic trees.

Discipline centric elective courses: DSE 3 (Parasitology)

Theory:

After successfully completing this paper, students will be able to:

1. Define the basic terms in parasitology and explain the interrelationship of host and parasite with examples.
2. Discuss the life cycle, pathogenicity, diagnosis, prophylaxis, treatment and importance of some Protists, Platyhelminthes and Nematode parasites.
3. Explain the biology, importance and control of few ectoparasites.
4. Gain knowledge about parasitic vertebrates.

Practical:

After successfully completing this paper, students will be able to:
1. Explain the life cycle stages of some major parasites.
2. Explain the morphology of head and body louse.
3. Demonstrate monogeneneans derived from fresh fish gills.
4. Gain knowledge about some nematode and cestode poultry parasites.
5. Demonstrate about parasitic vertebrates.

Discipline centric elective courses: DSE 4 (Aquatic biology)

Theory:

After successfully completing this paper, students will be able to:

1. Define the concepts of aquatic biomes.
2. Explain physico- chemical characters of lake ecosystem, biogeochemical cycle in lake.
3. Gather knowledge about marine ecosystem, coral reef & sea weeds.
4. Get a brief idea on management of aquatic resources.

Practical:

After successfully completing this paper, students will be able to:
1. Demonstrate microscopic aquatic organisms present in freshwater ecosystem.
2. Measure various parameters of water and learn to use various instruments in limnology.
4. Get a technical idea by making a report after visiting either to a sewage treatment plant or to Marine bioreserve or to a fisheries institute.

COURSE OUTCOME
Zoology Program

Semester I

Core course I (Animal diversity)

Theory:

After successfully completing this paper, students will be able to:

1. **Familiar with the non-chordate world that surrounds us.**
2. **Appreciate the process of evolution (unicellular cells to complex, multi cellular organisms).**
3. **Identify the invertebrates and classify them up to the class level with the basis of systematic**
4. **Understand the basis of life processes in the non-chordates and recognize the economically important invertebrate fauna.**
5. **Know about some of the important and common protozoans, helminthes of parasitic nature causing diseases in human beings.**
6. **Understood the importance of metamerism in annelids.**
7. **Describe the diversity in form, structure and habits of vertebrates**
8. **Explain general characteristics and classification of different classes of vertebrates**
9. **Know the biting mechanism of poisonous snakes as well as able to differentiate between poisonous and non-poisonous snakes.**

Practical:

After successfully completing this paper, students will be able to:

1. **Know the rules of taxonomy and the principle of animal classification.**
2. **Understand the diversity morphology, biological characters and taxonomical importance some selected museum specimens of different animal groups**
3. **Impart the knowledge on ecology of some important fishes, amphibians reptiles, birds and mammal.**

Semester II

Core course II (Comparative anatomy and developmental biology of vertebrates)

Theory:

After successfully completing this paper, students will be able to:

1. **Understand the evolutionary history of vertebrate morphology with a primary focus on structure-function relationships.**
2. **Trace the evolutionary origin of vertebrates through the vast diversity of animals living today.**
3. **Analyse of similarities and differences across groups using a systems based approach to assess the significance of adaptations.**
4. **Explain the basic concepts of developmental biology**
5. **Understand how a single-celled fertilized egg becomes an embryo and then a fully formed adult by going through three important processes of cell division, cell differentiation and morphogenesis.**
6. **Identify the genetic defects and inborn errors of metabolism.**
7. **Explain Down syndrome, Turner syndrome, Klinefelter syndrome & Thalassemia.**

Practical:

After successfully completing this paper, students will be able to:

1. **Demonstrate internal skeletons and osteology of different bone structures.**
2. **Direct observation and different stages of chick embryo development and placentation of animals.**

Semester III

Core course III (Physiology and Biochemistry)

Theory:

After successfully completing this paper, students will be able to:

1. **Understand about the composition of food and mechanism of digestion absorption and assimilation.**
2. **Attain knowledge of respiration, mechanism of and excretion and urine formation.**
3. **Describe the mechanism of circulation and composition of blood and neuromuscular coordination.**
4. **Explain endocrine system and their function.**

5. Understand the reproductive cycles.
6. Attain the knowledge of bio-macromolecule such as carbohydrates, protein and fat, their types and significance.
7. Illustrate the Interactions and interdependence of physiological and biochemical processes.
8. Know about the enzymes, mechanism of enzyme action and factors affecting the enzyme activity.
9. Physiological and biochemical understanding through scientific enquiry into the nature of mechanical, physical, and biochemical functions of humans, their organs, and the cells of which they are composed.

Practical:

After successfully completing this paper, students will be able to:

1. Attain knowledge of qualitative and quantitative analysis of macromolecules.
2. Demonstrate haemin crystals and different types of blood cells.
3. Gain knowledge about histology of different organs.

Skill enhancement course: SEC 1 (Apiculture)

After successfully completing this paper, students will be able to:

1. Explain what the prerequisite to get started in beekeeping are.
2. Describe the laws around beekeeping in India.
3. Discuss the responsibilities of urban beekeepers.
4. Name and identify major parts of the honeybee such as the stinger or mandibular parts.
5. Describe bee biology and anatomy from the perspective of managing bees.
6. Describe the importance of wax and identify what to look for in comb during hive inspections.

Semester IV

Core course IV (Genetics and Evolutionary biology)

Theory:

After successfully completing this paper, students will be able to:

1. Understand the theories of classical genetics and blood group inheritance in man
2. Describe the genetic variation through linkage and crossing over, chromosomal aberrations and sex determination.
3. Illustrate the molecular structure of genetic materials and the mechanism of gene expression and regulation character formation.

4. Explain the theories of evolution and highlighted the role of evidences in support of evolution
5. Describe the evolutionary knowledge through the concepts of natural selection.
6. Understand the concepts of the geological time scales, extinction,
7. Identify the fossil types in animals.
8. Explain the process of new species formation.

Practical:

After successfully completing this paper, students will be able to:

1. Obtain the knowledge about direct observation of fossils and evolutionary important specimen by which evolutionary relationship of animal groups.
2. Illustrate the application of the inheritance of Mendelian traits by direct observation among students.

Skill enhancement course: SEC 2 (Aquarium fish keeping)

After successfully completing this paper, students will be able to:

1. Demonstrate the culture breeding and marketing techniques of common indigenous ornamental fishes.
2. Describe the scientific method of setting an aquarium.

Semester V

Discipline specific elective courses: DSE 1 (Fish and fisheries)

Theory:

After successfully completing this paper, students will be able to:

1. Describe the fisheries and fishery industries.
2. Demonstrate the various types and methods of aquaculture practices.
3. Detect conditioning factors and how they can be manipulated for fishery industries.
4. Explain the physiology and reproductive mechanisms of important fishes.
5. Demonstrate the modern techniques and methods of fishery industries.
6. Attain knowledge about important cultivable fin fishes, shell fishes and importance of value added fishery products.

Practical:

After successfully completing this paper, students will be able to:

1. Identify different types of fish and their structures.
2. Describe the process of induced breeding in fishes.
3. Estimate the water basic water quality parameters.

Skill enhancement course: SEC 3 (Aquatic biology)

After successfully completing this paper, students will be able to:

1. Understand and apply relevant scientific principles in the area of aquatic biology
2. Employ scientific methodologies such as experimentation and data analysis in the area of aquatic biology.
3. Critically analyse, interpret and evaluate information relevant to aquatic biology
4. Appreciate the multidisciplinary nature of the study of aquatic biology and engage positively with people and ideas beyond their own discipline.
5. Explore some of the unique environmental problems dealing with aquatic environments.
6. Develop employable skills in freshwater biological water quality analysis

Semester VI

Discipline specific elective courses: DSE 2 (Wild life conservation and management)

Theory:

After successfully completing this paper, students will be able to:

1. Explain how animals interact with each other and their natural environment.
2. Develop the ability to use the fundamental principles of wildlife ecology to solve local, regional and national conservation and management issues.
3. Work collaboratively on team-based projects.
4. Demonstrate proficiency in the writing, speaking, and critical thinking skills needed to become a wildlife technician.
5. Gain an appreciation for the modern scope of scientific inquiry in the field of wildlife conservation management.
6. Analyze, present and interpret wildlife conservation management information.

Practical:

After successfully completing this paper, students will be able to:

1. **Identify different wild fauna.**
2. **Do sampling and estimation of wild animals.**
3. **Familiarize to animal pug mark, hoof marks, pellet group etc.**
4. **Apply basic equipment needed for wildlife field study.**

Skill enhancement course: SEC 4 (Research methodology)

After successfully completing this paper, students will be able to:

1. **Understand of scientific method, concepts and steps in research.**
2. **Differentiate between the Quantitative and Qualitative Research and understand different types of Research Design.**
3. **Understand the various techniques of Data Collection- Observation, Questionnaire, Interview Schedule; Case Study, Social Survey, Content Analysis.**
4. **Describe various types of Sampling.**
5. **Elaborate on Data Processing and Data Analysis.**